DOCUMENT RESUME

ED 047 533 EM 008 764

AUTHOR Gaudray, Francine, Comp.

TITLE Multi Media Systems. International Compendium. Eleven Project Descriptions of Combined Teaching Systems in Eight Countries.

INSTITUTION International Central Inst. for Youth and Educational Television, Munich (West Germany).

PUB DATE 70

NOTE 245p.

EDRS PRICE EDRS Price MF-$0.65 HC-$9.87

DESCRIPTORS *Adult Basic Education, *Adult Education, *Adult Farmer Education, Adult Reading Programs, Adult Vocational Education, Agricultural Education, Correspondence Study, Developed Nations, Developing Nations, *Educational Television, Illiterate Adults, Instructional Television, *Literacy, Multimedia Instruction, Supplementary Reading Materials, Supplementary Textbooks, Telecourses, Televised Instruction

IDENTIFIERS Boston TV High School, Conservatoire National des Arts et Metiers, Open University, TeleCNAM, Telekolleg, TelePromotion Rural, TEVEC, The Standard of Living

ABSTRACT

The demands made by modern technological society on the traditional educational system are briefly discussed. The remainder of the compendium describes 11 projects which are using educational technology, principally televised instruction, with success. Projects from Brazil, Canada, West Germany, France, England, Japan, Poland, and the United States are presented. Most projects broadcast conventional arts and science programs at the elementary, high school, or college levels. Brazil televised a course for illiterates, and France sponsored programs about agriculture for farmers and the other rural dwellers. Each report includes the aims of the project, description of programming, statistics about participation, and conclusions about the success of the programs. (JY)

[illegible]

ED0 47533

INTERNATIONAL
COMPENDIUM

Multi Media Systems

11 PROJECT DESCRIPTIONS OF COMBINED TEACHING SYSTEMS IN 8 COUNTRIES

With an introductory report by:

Henri Dieuzeide, Unesco, Paris

Internationales [illegible] und Bildungsfernsehen
8 München [illegible] Rundfunkplatz 1

EM 008 766

From April 26 until May 4, 1970 the Internationales Zentralinstitut will organize a Study Course in collaboration with the Council of Europe in the Broadcasting House of the Bayerischer Rundfunk in Munich. The theme will be:

The Application of Combined Teaching Systems and the
Subsequent New Aspects and Functions of Education –
Methods of Total or Partial Programmation.

The following compilation will be sent to the participants of the Study Course as working material for the meeting. The compilation is only of temporary nature and will be supplemented by the national reports of the participating countries and by complementary information provided by the responsible authorities of the projects listed here. After the study Course the Internationales Zentralinstitut will publish a final report.

Both the compendium and the final report will be published in English, French and German.

Publisher: Internationales Zentralinstitut
für das Jugend- und Bildungsfernsehen

Responsible: Helmut Minke

Theoretical conception: Dr. Michael Schmidbauer

Compiled and edited by: Francine Gauthey

TABLE OF CONTENTS

Page

I. Mr. Helmut Oeller, director of the Studienprogramm of the Bayerischer Rundfunk: Preface 2

Mr. Henri Dieuzeide, UNESCO: Education and Social Development: The Present Crisis and the Future Strategy 5

II. DESCRIPTION OF PROJECTS

Brazil: A Television Course for Illiterates 19

Canada: TEVEC 24

Federal Republic of Germany: Telekolleg 30

France: Télé-C.N.A.M. 66

Télé-Promotion Rurale 78

Great Britain: Open University 101

The Standard of Living 130

Japan: Broadcast-Correspondence High School 154

Poland: Politechnika Telewizyjna 184

United States of America: Boston TV-High School 202

Chicago TV-College 209

III. APPENDIX:

Charts summarizing the projects 233

PREFACE

Dr. Helmut Oeller

Director of the Studienprogramm of the Bayerischer Rundfunk

The present compendium has a double purpose: On the one hand it attempts to demonstrate the most important developments concerning the new teaching media and techniques, on the other hand it is intended to inform all pedagogues, producers, and politicians interested herein of the latest state of discussion in this field.

The first part of the compendium illustrates changes of society which have led the traditional educational system in modern industrial society into a critical situation, and also discusses some of the demands made by the society of tomorrow on the educational system of today. It cannot be assumed that society will, with the help of the traditional means of educational policy, be able to overcome this critical situation and meet the general demand both for equal educational chances for all of its members and for an improvement of the quality of training at all levels of education. However, directed exploitation of the new teaching media and techniques, of television, radio, films, programmed learning and of teaching and learning machines, does seem to constitute a path leading out of the structural crisis of our educational system.

This thought is taken up and discussed in the second part of the compendium. In so doing, not only the state of affairs of current research in the field of teaching media and techniques is taken into consideration, but a view of future developments and tendencies is also provided.

The third part of the compendium documentates concrete possibilities of application of electronic media in all sectors of the educational system. Here, those projects are described which have exceeded an experimental stage and are at present already making a concrete contribution within the field of education. In addition, not only the successes, but also the difficulties are presented here, which had to be overcome within the framework of organisation and realisation. In this way the experience is to be made available, from which a benefit can be derived in the case of similar projects to be conducted in other countries.

The projects described show in an impressive manner that educational television has passed its test. The experience made states that instructional television, combined with other teaching forms and teaching aids, is just as effective as conventional teaching, and that with the help hereof a larger number of people can be taught with less expenditure. Nevertheless, the studies and projects also show that television and the new media are not panacea which automatically solve all problems. The problem of quality still retains its former significance in the case of the new teaching media.

In the course of discussions and when planning projects, the participants often consider it to be more important to use as much teaching technology as possible, rather than to reflect on the didactic aim. This danger originates on the one hand in the fascination created by technology and its social prestige, on the other hand in the vitality which is normally developed by an organisation linked to such technological instruments, and further in a questionable approach to the novel methods and techniques. Technology should help and serve to realize a cause, as we otherwise run the risk of this very technology controlling and governing the educational process, instead of rendering this process possible in a new way.

We are now faced with the task of continuing the development of the new media and techniques, teaching forms and learning aids within a combination of systems (multi-media-systems). These systems must be integrated into the general efforts made in order to promote education. In this connection, research asks itself the following questions: Which are the special possibilities offered by the various media? In which special way are they suited for certain aims? Which combination of media and techniques, teaching forms and learning aids is especially suited for the attainment of certain aims? In which way must teaching with technical media be supplemented by teaching in groups, in order to achieve the maximum effect? What results from all these factors in respect to the didactics of the individual media and the combination hereof? In what way can the habits acquired during youth when dealing with technical media be utilized for life-long education and training? Which conditions and demands must be applied to the individual systems, so that one day they can form parts of a complete work?

I hope that this compendium may provide pedagogues, producers, and politicians with a stimulus for the exploitation of the new media and techniques at schools, universities, in vocational training, and in adult education. The demands approaching us can only be met by the new partnership of all parties concerned; a partnership, within the framework of which everybody is obliged to make his own particular contribution: the pedagogues and scientists, the subject design, the producers and communicators, appropriate production and its distribution, the politicians, the society foundations and political foundations, and, encompassing everything, criticism. Because, basically speaking, everybody will - in communication of the future - want to reinforce and not to reduce the freedom of selection, and the freedom of the individual within society.

- 3 -

EDUCATION AND SOCIAL DEVELOPMENT:
THE PRESENT CRISIS AND THE FUTURE STRATEGY

by Henri Dieuzeide, UNESCO

(1) Education as a Factor of Social Development

(2) The Need of Qualified Manpower

(3) The Promotion of the Educational Standard

(4) Promotional Society

(5) Permanent and Universal Education

(6) The Crisis of the Educational System and Insufficiency of the Old System

(6) Is a New Strategy Possible?

The fact that the academic strongholds today have greater personnel and financial means than the military strongholds is neither a coincidence nor fate. Our society is very proud of being able to delegate one of fifty adults to the teaching process, and of the fact that a quarter of the population is engaged in the educational process. However, the question arises whether these comprehensive endeavours are sufficient to guarantee harmonious progress. In addition, it must be determined which strategy can offer the population further education to an extent corresponding to scientific and technical advancement.

(1) Education as a Factor of Social Development

The significance of "intellectual investment" for the evolution of society has been generally recognised and accepted for more than a century. In the words of Stuart Mill: "It is the primary task of a nation to offer the children of the working class an effective education. The future of the working class depends mainly on their cultural development".1)
Two countries, namely Denmark and Japan, already proved at the end of the 19th century that countries with low natural resources as compared with their neighbouring countries, can nevertheless reach a high standard of living by accentuating their educational system.2) Denmark, which introduced compulsory elementary education in 1814, was able to re-structurize her agricultural system within a few years, when in 1880 wheat from the USA and USSR flooded the market, so that whereas Denmark's agricultural production was effectively converted from cereals to milk, the production of the other European countries was not able to respond to this exterior pressure so quickly.

The rapid progress of industrialization in Japan, which has taken place during the past 50 years, was rendered possible by the expansion of the educational system. In 1900, 82 % of the Japanese population had elementary school education, and 11 % had a secondary school background. These figures were higher than in the Western hemisphere.

Similarly, the rapid progress made by the USSR can also be explained by her spectular promotion of the educational system, rather than by the nation's abundancy of natural resources.3) The Russian economist Strumilinе, who in 1924 conceived a ten-year plan for general compulsory education, was the first to attempt to develop a method for measuring exactly the contribution made to the progress of society by education. Strumiline stated that education boosts the qualifications of the workers,

---

1) J. Stuart Mill, Principles of Political Economy, Ashley Press, p. 47

2) Le Thanh-Khoi, L'Industrie de l'Enseignement, Editions de Minuit, 1967, pp. 352-390

3) E. A. G. Robinson, J. Vaizey, The Economics of Education, McMillan, 1966, pp. 89-173

which is reflected by an increase in productivity, this in turn leading to a rise of the worker's wages and, subsequently, of the national income. The contribution made to the economy by education can be determined by comparing the funds invested in education by individuals (or by society) with the resulting increase of the national income.

In the USA, Theodor Schultz has, since 1955, been attempting to find the relation between the differences in education and the differences in income of the individuals, measured by their diplomas, for the period lasting from 1929 - 1956. During the same time, the Research Department of the Japanese Ministry of Education has conducted a similar study for the years from 1930 to 1955. Finally, it has been determined by E. Denison, in the course of his examination of the factors which have led to the economic progress of the USA, that education has contributed to the increase of the national income and production per employed person in the period from 1929 to 1957 more than any other factor.

The percentage increase rate of the national income obtained in this way in the USSR was, according to Strumilin, 16 % in 1940, 29 % in 1950, and 23 % in 1960. For the USA, Schultz calculated an increase of 17 % to 33 % for 1929 to 1957, and Denison arrived at a percentage of 23 % for the same period. In Japan, by comparison, the national income increase induced by the same factor was 26 % for the years from 1930 to 1955.

These percent figures are very similar: It can be said that the progress in education has, for the last 40 years, contributed approximately one-fifth of the total economic growth, in this way constituting the most important factor of investment. "In the long run, this growth is limited neither by physical nor by financial boundaries. The shortage of raw materials, and the limited living space, which have led to so many wars, do not constitute insurmountable difficulties anymore. It can well be imagined that a civilization moved to a rock in the Pacific Ocean could continue to prosper through work and inter-relations between the individuals. In this case, the value of the human being and the consequent significance of education would appear as the basic element of the process of development. Destroy my workshops and my machines, but leave my men, and I shall quickly recover, said Ford."1)

According to these statements it must, however, be stressed that the results arrived at by the economists do not permit determination of the nature and extent of the respective investments allocated to each educational aim. "It cannot yet be said definitely how high the investments in education must be, in order to allow or obtain a certain increase of the national product".2)

---

1) M. Vermot-Gauchy, Developpement de l'Education et Croissance des Sociétés, Perspectives: 14 (1962), p. 113

2) H. Parnes, Forecasting Educational Needs for Economic and Social Development, OECD, Paris, 1962, p. 13

This incapacity possibly results from the attitude of the economists, who consider the development of the individual to be merely "a residual factor of economic progress",[1] instead of regarding the individual as the key to national growth.[2]

Be this as it may, the correctness of these economic indications can be verified "a contrario" by examining the difficulties of industrial society caused by the bottlenecks in the training of qualified manpower.

(2) The Need of Qualified Manpower

The demand for scientific and technical personnel has increased continually for the past 10 years in the countries of the Western Hemisphere. The growing complexity of technology requires a corresponding rise in professional qualifications.

The economists estimate that, in a pre-industrial society (as to be found for example in the developing countries), the primary sector of the economy (mainly agriculture) occupies about 80 % to 90 % of the people in employment, the secondary sector (industry) occupies between 8 % and 15 %, and the tertiary sector (services) 2 % to 5 %. In the industrial societies in Europe these per cent figures are, today, between 20 % and 30 % for the primary sector of the economy, 40 % to 60 % for the secondary sector, and 15 % to 25 % for the tertiary sector. A new "quaternary" sector, that of science and economy, already constitutes 5 % to 15 %, according to the nation in question.

These percentages are far from being stable, and are still developing very rapidly. The transfer of manpower from the primary and secondary production sectors, to the non-production tertiary and quaternary sectors, is constantly increasing. Between 1940 and 1964, the percentage of the primary and secondary sectors in the USA had decreased from 55 % to 47 %, in the USSR from 82 % to 76 %, and in Canada from 61 % to 54 %. Present projections permit an estimation to the effect that "post-industrial" society, as will be found among the generation of the year 2 000, will occupy 5 % to 10 % of its population in the primary sector (2.5 % in the case of the USA, according to the latest forecasts), whereas 20 % to 30 % will be working in the secondary sector, 40 % to 60 % in the tertiary sector, and 20 % to 25 % in the quaternary sector.

---

[1] J. W. Kendricks, Productivity Trends in the USA, Princeton, 1961

[2] For this methodological point, refer to the Report of the International Education Planning Conference of UNESCO, which took place in August 1968. Note especially page 97 to page 113: "A Diagnosis of the Social-Economic Development and Educational Development".

The immediate consequences of this development can be seen everywhere: The rate of unemployment among the unskilled workers is opposed by the shortage of engineers. In the United Kingdom, total employment has risen by 6 % between 1951 and 1961, whereas the number of employees in executive positions has increased by 58 %, and that of technical personnel at higher and intermediate level has increased by 30 %. In all industrial countries, the economists have registered an increase in the demand for highly-qualified personnel, even in those economical sectors which are characterised by a reduction in the overall number of people employed.

The consequences of this shortage of qualified manpower are numerous and diversified. The conservative economists regard this as a factor of deceleration of national economic growth: It does not only lead to an increase in wages, which cuts the competitiveness of production costs, but also impedes the propagation of innovations and constitutes a dangerous loss of productivity.

Obsolescence extends to knowledge just as to material; this results in a "disqualification" of the individual, which tends to create a "counter-society" consisting of those persons who are not willing or able to follow the rhythm of advancement. It should be noted further that, by virtue of the amalgamations strived at by the firms, and the consequent concentration of the economy, an additional selection among the personnel, and the rejection of the less-qualified employees, is provoked, who must, however, be re-trained and re-integrated.

It should not be assumed that this problem affects only those sectors of the economy which are, at present, expanding. A study carried out recently on the development of Swedish agriculture[1], shows that although the young agriculturists between 25 and 40 years of age (who will expand their farms, thereby creating a disadvantage for the older agriculturists) will have to improve their education and training in order to solve effectively the new problems with which they will be confronted, the older agriculturists, on the other hand, will have to learn to fit their activities into the framework of short-term, closely-limited planning: However, further training will, in this case, not have to prepare the older agriculturists for the general change, but will have the purpose of "inducing them to plan their activities under uncertain conditions, without any great difficulties". In those sectors of the economy which are growing smaller, the need for training is not reducing, but in fact increasing, which is stimulated by this process of shrinkage.

These apparently contradictory economical forecasts lead to a common problem, namely of how to guarantee that the individual can adapt himself to the rhythm of technical progress.

---

[1] G. Ericsson and F. Petrini, Formation d'un personnel qualifié pour l'agriculture de demain, OECD, Document No 80, 1967.

(3) The Promotion of the Educational Standard

Although, especially in the milieu of communicators, the solidarity of our present-day world and the inter-dependence of the individuals are often stressed, the mobility and uncertainty of the contents of this technologically-orientated world, which is in a perpetual state of erosion, have, in comparison, been measured and analysed to a much smaller extent. The specialised world, the firms and enterprises, and the nations are forced continually to re-adapt their conceptions, in so doing taking the risk of forfeiting their power and existing positions within a few months. This is a normal occurrence in our day-to-day life: Every person born at the beginning of this century has lived in at least three worlds, the brutal transition periods between which were underlined by two great wars. In the words of Margaret Mead: "In future, nobody will live in the same world in which he was born, and nobody will die in the world in which he worked during the peak period of his life".[1]

However, although we have already gained experience in this accelerated development, it has not yet penetrated into the world of thought. The individual does not realise that, in an industrial or consumption society, knowledge is already outdated when being used - and partly even before it is employed at all - like machines. Molecular biology and atomic physics, cybernetics and operative research, social science, automation and urbanisation, telecommunications and astronautics, data-processing and electronics query the fundamentals and contents of the theoretical and practical knowledge of agriculture and industry, of strategy and politics. Oppenheimer stated that the number of scientific inventions increases according to a geometrical rate of progression, and Parcelle pointed out that 90% of all scientists who have ever lived, live today.

The knowledge acquired today at a technical university will be completely obsolete in less than 10 years. (In the case of a few "peak" fields of technology such as data processing and electronics, this transition process takes place within an even shorter period of time.) In a few states of the USA, for example Oregon, no doctor is authorised to practice for a period of more than five years. His approbation is only renewed if he has attended at least three months of further training seminars in the course of these five years.

The period of time in which knowledge is rendered out of date is continually becoming shorter, so that a renewal of existing knowledge cannot any more be spoken of, but of the preparation of every person in employment for a process of permanent re-training. In fact, the mental equipment needed by an individual to integrate into the present-day world is completely different from that which used to be required to live and develop within the surroundings of a stable world. According to a statement made by

---

[1] Margaret Mead, Community Education, 58th Year Book of the N.S.S.E., 1959, p. 66

Paul Valéry, a modern educational system would have to produce "individuals capable of opposing a completely new and strange world". A modern world should not transfer the individual from an old and stable condition to a new, and also stable, condition, but should promote a continual process of new creativeness, both in the relations of the individual with nature, and in the interrelations of the individuals themselves. Thus, modern education must prepare and adapt the individual of the future for a permanent technical, economic, social, and intellectual revolution.[1]

(4) Promotional Society

The industrial nations did not become conscious of this need for education until a short time ago. "A tumultuous and turbulent phenomenon, in which no real 'direction' can be found".[2] Apart from the economic requirements, there is also the factor of social demands. Both of these factors do, at present, increase more rapidly than the funds allocated by society to the education of the population. The consumers' demand for education is an irreversible phenomenon: It is certain that, even in the case of a reduction of the demographical factor, the demand for education would continue to rise.

The connection between the social hierarchy and the standard of knowledge of the individual has penetrated the conscience of all. The worker tends to measure his vocational success by his income. The pressure exercised by young university graduates starting work for companies boosts competition within internal groups and within firms: This competition promotes above all the desire for further training among the executive personnel and the technicians with insufficient qualifications.[3] The promotional society, based on mobility, and consequently on insecurity, stimulates a desire for versatile education among the workers.

This social wish for "universal pedagogisation" already plays an important part in the life of the over-industrialised nations. In the USA, the number of persons attending evening classes is approximately as large as the number of young people and children still attending some kind of regular school, college, or university, etc. A survey conducted by UNESCO states the example of an average family living in the Middle West, consisting of five persons. The father is a trained bricklayer. He is paid by the federal government to give courses after work at the local secondary school. In addition, he participates in the 'tribune' held weekly, which is organised by the local educational council, and deals with cultural subjects. His wife, who is not in employment, is a member of the local gardening club and attends the courses in weaving, which are run at the same secondary school at which her husband teaches. The elder son, who works at a store, is a regular student in the courses on sales management and organization held by the local college. The daughter, who is a secretary, has decided to enrol in a course in art, after having taken an orientation test. The younger son, who works in an office, studies book-keeping and accounting at the local college, and participates actively in local affairs.[1]

---

[1] Voir sur ce point: L'éducation dans le monde futur, in: Prospective, 8 (1961)

[2] F. Viallet: Education et société, in: Prospective, 14 (1967)

[3] G. Thuillier: La promotion sociale. Paris: Presses Universitaires de France, 1966, pp. 21-39

In the USSR, the process of "pedagogization" has developed analogously, especially in respect to vocational advancement, although this development has without doubt been more rigid here. "Before enrolling in the National Correspondence Institute for Building Engineering, in the courses of which he has now been participating for five years, Marusnian was a mechanic at a factory manufacturing levers, whereas today he is a construction engineer at a factory producing pre-fabricated reinforced concrete parts. Loukmanis, who is a correspondence student at the Polytechnical Institute in Riga, was on registration an assembler, and is now, shortly before the end of his studies at the Institute, the director of the local trolley bus company. Matosson, who is a correspondence student at the National Institute for Agriculture, started studying as a worker of the Sovkhose Olenkovo in Tula. He is now in his fourth year of studies, and is the director of this firm."[2]

(5) Permanent and Universal Education

Education now appears to be a process extending over almost the entire course of a person's life (life-long education, as called in the UK). This may be only an elementary thought, but it is nevertheless coupled with considerable consequences for the educational system. Until a few years ago, it was generally accepted that the life of each individual can be divided into two distinct sections, formation and production. During the first of these two sections, which was determined by the resources of the family or of society, the individual "learned", he "swallowed" knowledge, rules of conduct and taboos which were intended to help him in fulfilling the functions corresponding to his standing within the framework of society. The end of this first section of life was characterised by a series of rituals, which marked the end of childhood and the beginning of life. At this point, one stopped preparing for life - a distinction against which our present-day students are revolting with full determination. A young person cannot any more imagine entering into a stable world with "mental equipment" (as it used to be termed) which is to guide his judgement and determine his conduct for the entire duration of the second phase of his life. Today, education appears to be a means of living one's life and not any more a limited stage of preparation. Education is not an element supplied once and for all. It is not any more the path of access to society, but is rather the centre of this society. Modern civilisation demands of every individual to master and exercise his own abilities at every moment.

---

[1] A UNESCO survey quoted in: Enquête de l'Unesco citée par: A. Hartung, Pour une éducation permanente, Paris: Fayard, 1966, p. 132

[2] V. Elioutine, L'instruction supérieure en U.R.S.S., Etudes Soviétiques, 1960

Education is permanent both in space and in time. It is inclined to encompass the entire field of human experience. The educational situation and the tasks of training exceed by far the limits of schools. School is not a purpose in itself, and does not set its own boundaries. National education becomes the educating nation: family, place of employment, the church, the unions, the army, and the club all constitute "strongholds", which offer courses for participation, knowledge for development, the reception of information, and the formation and reinforcement of personality. Thus, it is a uniform school curriculum for everybody: An individual's expansion of knowledge and methodological procedures, and the refinement of his instruments of perception of the world and of communication with other individuals. The individual must consider himself as a factor of development and, above all, as the primary person responsible for his own development: the capacity of guiding his experience, a pioneer spirit, and the capacity of making new discoveries and doing creative work.

It can be followed from this that the concept of permanent education leads to penetration of the steps and levels of the traditional educational systems, the initial measure of which will be to link closely adult education with school education: The adults will only be able to make progress if they have been taught and orientated to do so in their early childhood; on the other hand, however, the traditional school structures which are aimed at acquiring a bulk of knowledge cannot be reasonably abolished until new structures will guarantee the adult the possibility of furthering his training and education. "Permanent education is not a new technique. It is merely a framework within which all educational activities can be better coordinated. The transformations to which our present-day society is subject demand, no matter in which phase of development they may be, a parallel re-formation of the educational process, be it mural or extra-mural. For this purpose, the concept of permanent education provides for all aspects of education to be covered both in all age groups and in all fields of activity."1) Now, this idea only needs to be realised.

(6) The Crisis of the Educational Systems

It is not possible to overlook the "unconsciousness" of the existing educational systems, in meeting the economic and ethical requirements of modern civilisation. This is one of the greatest tragedies of our day.

---

1) Report of the International Education Planning Conference Paris: UNESCO, August 1968, p. 43

The nations themselves did, in this connection, neglect neither efforts nor work. Considerable progress has already been achieved. However, the results achieved and their pragmatism are already now completely disproportioned as compared with the scope and degree of urgency of the actual need. It can therefore be asked whether it would not be right to search intensively for new forms, which are more systematic, massive, and scientific.

Naturally, the concept of permanent education has, for several years, been inspiring the reforms of the educational systems, either directly or indirectly, especially in the Scandinavian countries and France (reform Edgar Faure, 1968). The interdisciplinarity of the "centres of interest" replace the closely defined "disciplines". "Learning to learn" is gradually becoming the rule of school activities. New relationships between the teacher and the student, which are not anymore characterised by authoritarism, are progressively being introduced. Socialisation is expanding in society by virtue of the replacement of individual competition by joint creative work. The integration of educational technology into the school activities is becoming apparent (radio and television, teaching laboratories, interrogation centres).

However, the present and future effects of these efforts on the economical development are not yet noticeable, as the period of time lapsing between the development of an educational facility and the general economic and socio-cultural development must be taken into consideration. Such radical changes pre-require buildings, equipment, and the training of teachers, lasting between two and three years, as well as the detailed planning of the programme, which would also take at least a year. A profound change of educational policy can, therefore, only become effective in the following decade, in general, however, between 12 and 15 years later. It is thus necessary to search for shorter paths and expeditive procedures in order to bridge the coming decade.

It can be hoped that, in certain fields, the lapse of time incurred by educational development can be reasonably shortened. This applies especially to the direct training of workers, apprentices, and adults, the effects of which are reflected straight onto the economy or on the conscience of the citizens after two to three years. Thus, the yield of the educational efforts is much more rapid in this case, no matter whether these efforts are constituted by post-school education, technical further education, vocational further education, or re-training and conversion. This factor therefore deserves the attention of the economists and statesmen. Bertrand Schwartz differentiates here between three systems of action: Education within a socio-cultural milieu, which is generally realised by organisations for adult education, "by these currents for an active democracy and these principal agents in educating the citizens"[1]; further education on university level, which is carried by the universities; and education in the social and vocational milieu "in which the vocational surroundings become the development surroundings, and a person's occupation becomes the starting point of a global, and not only vocational, development".[1]

---

[1] B. Schwartz, L'éducation permanente, in: Nouvelle Frontière, 9 (1969) p. 37

In these three sectors, parallel, unofficial, hardly visible, but nevertheless very active educational networks, have developed especially since 1945. In the words of Philip Coombs: "It is quite possible that in certain countries (for example the USA and the USSR) the entire scope of financial and human resources, which are already devoted to part-time educational programmes, correspond approximately to the quantities available for school education".[1] In general, these educational networks are carried by private economical enterprises, or also by the army and by welfare organisations. In the USA, in the Federal Republic of Germany, and in the UK, some large industrial concerns apparently devote large sums of money to further education courses at university level for their executive personnel. These sums are approximately as high as the total budgets of large universities. Often, the firms in question run the same courses and even engage the same teaching staff as these universities. In the USA and in Scandinavia, it has been found out that the premises of the Sunday schools associated with the various churches are just as large as all school classes of all state schools. Both in Europe and in the USA the national armies offer technical training at so high a level, that military personnel often change over to the private economy. (This applies especially to aeronautics, technical professions, telecommunications, and data processing).

What are the effects of these recent developments?
Thanks to their flexibility, these general and vocational further training programmes can compensate some of the shortcomings and backlogs in the development of the school system. However, as these programmes are not developed within the framework of a definite structure, they only meet part of the existing needs, and neglect entire sectors (especially administrative science, commerce, and services). The programmes usually lack a joint structure, and are mostly not coordinated with official school measures, which in turn leads to considerable reduction of their actual rentability on a national level.

(7) Opposition to the New Educational System and Insufficiency of the Old System

In addition, the development of these programmes is faced by numerous problems to be found above all among the ranks of the teachers, who so far held a kind of exclusive control of the conveyance of knowledge. The new forms of permanent education demand a revision both of the teachers' habits, and of their attitudes towards knowledge, of their teaching methods, and of their relationship towards the pupils and the students. It should also be mentioned that, in order to render a general and effective pedagogical service, these new institutions of permanent education require some radical reforms of industrial society: A reorganisation of the structure of professional life, organisation of leisure, adaptation of the legislation and regulations

---

1) Ph. Coombs, La crise mondiale de l'éducation: l'enseignement non scolaire, Paris: Presses Universitaires de France, 1968 p. 205

concerning paid holidays, etc.[1]

The pedagogical difficulties are by no means smaller. In this connection, the first instance is constituted by the unification of the objectives. On the one hand, although the individuals will have to merge into a world in which they will fulfil highly-specialised functions, they will on the other hand have an excess of material possibilities and spare time at their disposal. Thus, they must simultaneously be functional elements and human elements. Education will therefore have the task of leading the individuals to a double form of mobility: (1) mobility pertaining to the varying and changing specialised fields, and (2) mobility permitting them to reach a parallel profundity of their entire personality. As yet, there have been only a few educational forms which have managed to form the individuals to fulfil a "productive role", that is to say a "well-executed function" and simultaneously to provide them with a cultural background allowing their "entire personality" to unfold. New efforts must be made in order to determine both a collective and an individualised form of education, which is also both global and "tailored to the individual". In brief, this must be an educational form which meets the requirements of the economic communities and the ambitions (and capacities) of every citizen.

The shortage of qualified educators and the lack of reliable studies make the rapid and comprehensive organisation of such teaching forms uncertain. The principles of the education of educators have not yet been defined in respect to all fields of knowledge. It is not clear whether the scope of the endeavours to be taken is so comprehensive that the engagement of top intellectual personalities and technical experts of the industrial nations, which would be necessary to develop a teaching system according to the traditional school design, would not be a danger for the nation in question. Need it be stressed again that the gap between the needs and the financial means available will continue to grow in the course of the coming years? The classical financial resources are already exploited to the brim by the traditional teaching systems. Without doubt, it will be necessary to search for new forms of cooperation and new financial resources. However, it will also be necessary to examine in what way the distribution of the existing resources must be restructured.

The limited classical methods of teaching lead to a continual increase in expenses per pupil (student). Results superior to the present ones can only be reached with the means available by virtue of a radical modernisation of the learning process. In this field, modern technology and research provide us with an expensive selection of aids, the possibilities of which should be closely examined in respect to rational usage of the available human and economic resources.

---

[1] See in this connection:
P. Lengrand, L'Education permanente, Paris: Peuple et Culture, 1966, pp. 43 to 68

(c) Is a New Strategy Possible?

A strategy for the employment of such means appears to be subject to a double requirement.

On the one hand, the main aim of a teaching system which is not any more primarily selective is to propagate knowledge. In other words, it is to form and universally distribute knowledge. Permanent education is based on the accessibility of *information*: information which must excite a zeal for learning in a given subject, clarify its possibilities, and induce action.

This information will thus have to be orientated *towards auto-didactics* (this constituting the second requirement). The adult must be able to choose those possibilities which are best adapted to his abilities, he must be able to determine the learning process himself, and to realise at his own initiative the socialisation of the knowledge acquired (inter-relations, small groups).

This shows the importance which should be attached to the development of *educational technology* in this double perspective, concerning both the systematical application of the existing communication networks and the scientific methods of learning, required in order to arrive at autodidactical networks, i. e. "self-service" educational facilities on a national scale.

The traditional education system has in general underestimated the dynamic character of the communication networks during the past years. This system has preferred rather to denounce the competition of the "parallel schools", than to make these schools allies. However, the "universe of communication will dominate that of production, like a society dominating the societies" (P. Naville). Television (in conjunction with other communication media like correspondence teaching) offers the educational system an unprecedented structural form, which allows for permanent presence of, and unlimited access to, education for all segments of the population.

Simultaneously, the development of scientific methods of learning, such as programmed teaching (in the form of printed material and teaching machines) facilitates more than ever before the full participation of the individual in his own education, the continual maintenance of his intellectual attention, and his realisation of his own progress.

Need it be pointed out again that the combined application of such carriers and methods has already been tested in significant experiments? However, it has too often been attempted to reach too modest a goal at too fast a rate. Perhaps the time has now come when these carriers and methods should be allowed to become operational by being confronted with more ambitious objectives. This should be the case before it is too late.

II. DESCRIPTION OF PROJECTS

A Television School for Illiterates — Brasil

(1) General Facts

There are currently 20 million young people and adults in Brasil, who have never attended a school and who can neither read nor write. The extension and enlargement of the network of elementary schools has not kept pace with the rapid increase of the population. There are not enough funds available for constructing new schools and training a sufficient number of elementary school teachers. Thus, it is feared that in spite of compulsory elementary school attendance, the enormous number of illiterates will increase further in the course of the next few years.

Therefore, many people are deprived of an elementary school education, which is not only guaranteed to every citizen by the Brasillian constitution, but is even compulsory. This fact becomes even more critical when considering that elementary school education conveys the minimum of education required by every person, if he is to be a proper member of society. The knowledge of certain connections and problems of society, and the ability to read and write, are essential for a person living in our modern day, to allow him to understand his surroundings, to help him realise and understand his rights and duties as a citizen of the state, and to enable him to work consciously for a fulfilled and happy life.

Apart from the great significance of education as to a person's happiness and vocational and social possibilities in life, it is also of importance in respect to the function of society as a whole. The educational standard of the population is closely related to the economic growth of society and in this way is decisive for the image and influence of a nation in the rest of the world. If Brasil wants to rapidly advance from its present pre-industrial state to that of a modern industrial nation, and if generations of inhabitants are not to be deprived of happiness and success in life, the country must solve the problem of illiteracy quickly and effectively.

As the extension of the traditional school system is progressing too slowly owing to a shortage of funds and of a qualified staff of teachers, it has been decided to resort to new methods by employing the mass communication media against the extremely low standard of knowledge and the illiteracy in Brasil. Thus, since the autumn of [illegible] Brasil TV has been broadcasting a course programme aimed at teaching young and adult illiterates to read and write, and to make them acquainted with the most important techniques of social life. This course programme was conceived and developed by the Brasillian Ministry of Education in collaboration with "Fundação João Baptista do Amaral" a non-profit organisation devoted to promoting educational TV in Brasil. The courses are produced and broadcast jointly by TV Globo, a commercial station, and the various stations linked up with TV Globo in the province of Guanabara. At present, the effective range of the project is limited to the province of Guanabara in the south-east of Brazil. It has been planned to extend the "Television School for Illiterates" to all parts of the country, provided the current experiment proves successful. The project is financed by the Ministry of Education, the army, and by some large private industrial enterprises. In conceiving and conducting the experiment, the planners exploited experience gained from a television course for illiterates broadcast in Rio de Janeiro in 1962. This course was also developed by the foundation "João Baptista do Amaral". Unlike the present project, the TV courses carried out in 1962 were not supplemented by direct teaching sessions for the participants.

(2) The Organization of the Teaching System and the Courses Offered

Persons interested in participating in the Television School are registered at the viewing centres of the respective part of town or of the village, in which they live. These viewing centres are set up by the project management. When enrolling, the participants are given written accompanying material geared to the TV course. Both participation in the courses run by the TV school and the accompanying material are free of charge.

The intermediate exam and the final exam must be taken at the headquarters of the TV School in Rio de Janeiro. The examinations are objective, i.e. the participants are given a catalogue of questions, which are each followed by several categories of answers. The grade achieved results from the number of correct answers. After having passed the intermediate and the final exams, the participants receive a certificate; the level of knowledge certified hereby, and the related qualifications, correspond in full with the standard and qualifications of the elementary school final certificate.

The participants view the individual television broadcasts at so-called viewing centres. These centres have been installed on company premises, in schools, clubs, associations of all kinds, and church and army facilities, all of which have expressed their preparedness to cooperate in the operation of the project. Most of these organizations did not only provide the necessary premises including chairs and tables, but also supplied the requisite TV sets and a small library with important school books for the participants, free of charge.

The course consists of 36 individual programmes lasting 20 minutes each. One programme is broadcast per week at 7 p.m. The current course was launched in September 1968 and will close in May 1969. The three main aims are as follows:

(1) to teach the participants to read and write

(2) to help them to orientate their position within society and to understand and solve more satisfactorily the questions of everyday life in employment and family, and to collaborate actively in solving topical problems of society

(3) to make them acquainted with the basic rules of hygiene and health.

During the lessons, the participants are called upon by the television teacher to cooperate actively. They are required to write down certain things or sometimes they even have to read aloud or sing, or give immediate answers to questions. Musical interludes and the presence of two or three course participants at the studio, who respond to the directives of the TV teacher, are intended to activate the participants at the viewing centres and to integrate them as a component of the overall system. In general, the television lessons are broadcast live. The TV teaching staff is made up of specially selected and trained pedagogues. The programmes are supported substantially by demonstrations, trick films and various realistic film shots. After each programme has been broadcast, a 30 minute complementary lesson is given at the viewing centres, which is supervised by a teacher. These complementary lessons have two purposes:

First, discussions with the teacher and other participants can serve to clarify points and answer questions not presented clearly enough by the TV lesson.

Second, the teacher is able to repeat and underline the specific problem of life treated by the TV lesson, and can elaborate it during a discussion;

and finally, the teacher can draw up a plan together with the students, to apply their new knowledge to solving a problem existing in the community, in which they themselves live. Thus, the third segment of the learning process consists both of applying the knowledge acquired to the immediate surroundings of the individual participant, and of the experience gained hereby. The participants meeting at the individual viewing centres form groups which then examine and solve certain problems in their communities. This combination of television teaching and group discussion under the supervision of a teacher, and the consequent group action, results from the main aim underlying this project, namely to prepare illiterates for leading their own lives consciously and actively, i.e. to make them better suited for mastering the problems of life, and also to understand the problems of a developing country like Brasil, and to stimulate every citizen to help in overcoming these problems. The teacher supervising the group discussions held at the viewing centres, and in charge of the subsequent group actions, is usually also a teacher at the local elementary school, and is thus acquainted with the surroundings in which the participants live and the problems characterising their life. The group teachers are prepared for their work of supervising the discussions held at the viewing centres and of stimulating group actions, by a special course run at the headquarters of the Television School and by a manual referring to the specific problems treated in the individual TV lessons. So-called "inspectors" maintain the contacts between the viewing centres and the project management. They give the group teachers help and advice in their work, and in turn supply the project management and the TV teachers with valuable information as to how the concept and design of the television lessons could be improved.

(5) The Participants

Some 2,000 people participate in the Television School for Illiterates in 50 different viewing centres situated in Rio de Janeiro and in the villages and towns in the province of Guanabara. No final statements can yet be made as to the success of the project, as the number of participants taking the final exam is not yet known, and the results of the exams are accordingly not available.

However, the evaluation of the statistical data which had to be supplied by the participants on registration, shows the following results in respect to their motivation and social composition:

All participants hope to improve their social standing by completing the course programme. In other words, they want to reach better-paid and secured jobs by means of their newly-acquired knowledge and skills. Most of the participants are single men between 20 and 29 years of age, who have never attended school. They are in employment, and are almost all unskilled or semi-skilled workers. Their income is slightly above the requisite minimum for existence; most of them living in Rio de Janeiro or in the suburbs.

A second group of participants is made up of children between 7 and 12 years. The mere existence of this group makes a weakness of the Brazilian school system evident, which was mentioned at the beginning of this report. Although attendance of an elementary school is compulsory for all children, 45 % of the children born every year cannot be accepted at school, due to the shortage of elementary schools and elementary school teachers. Moreover, many of the present elementary schools do not have the requisite teaching material, and 50 % of the teachers have not had systematic training, as is proved by statistics. Thus, these teachers are not sufficiently prepared for their work, so that the lessons they give have corresponding shortcomings. These two weaknesses of the traditional school system are, however, avoided by the Television School: First, the TV School can accomodate all persons interested, and second, the lessons reach a very high standard thanks to the thorough preparation and to the employment of selected teachers in each subject.

At present, the results of a survey comparing the achievements of the Television School participants with those of regular elementary school pupils, are not available. They will, however, be supplemented before the final version of this compendium is published. The results of a comparative analysis of costs have, on the other hand, already been established. This analysis makes it evident that in the first phase of the experiments the expenses per participant were higher than those of regular teaching at elementary schools. However, calculations of the developments of the Television School show that a decrease of expenses to a level far below the per capita expenditure in regular teaching is to be expected, parallel to the expansion of the effective scope of the project and the increase of the number of participants.

In the long run, and in view of the planned expansion of the Television School, it may well occur that the school becomes a rival of the traditional school system, and that an increasing number of regular elementary school pupils enter the TV School, both due to the quality and the time economy of television teaching, and because of the continuing existence of a structural crisis within the traditional school system.

The project planned for Autumn 1968 was preceded by a large-scale promotion campaign. For several weeks, information on the Television School and its main aims was propagated in the press, on radio and television, and in cinemas. In addition, personnel for recruiting participants were sent to all meetings and assemblies attended by large numbers of people, held in the state of Guanabara. They distributed pamphlets and attempted by direct discussions to stimulate the interest of illiterate young people in the Television School. Apart from its main aim of recruiting participants, this promotion campaign for the TV School was also intended to help gain the active cooperation of organizations and associations of all kinds, and also their financial support. The extensive support which the project received from a large number of organizations, shows the importance placed on the problem of "illiteracy" by all segments of society. It also makes evident that similar preparedness for cooperation can be expected when the enterprise is extended to other parts of the country.

TEVEC[1]

An Experiment of Primary Education in the Province of Quebec

DESCRIPTION

The region of Saguenay/Lac St. Jean, situated 150 miles north of St. Lawrence behind the Laurentian Mountains, takes second place among those regions in the province of Quebec, which are affected by unemployment. This was one of the factors that induced the Ministry of Education in Quebec to select this region for carrying out an experiment in public education. Another element in favour of the selection of the said region was constituted by the preparedness and open-mindedness of the population towards projects promoting their social advancement and their interests.

By testing new techniques of permanent education, Tevec is intended to provide a population group having a poor school background with both scholastic and socio-cultural knowledge, by means of a collective and individual campaign in further education.

Television has long proven its merits as a carrier of education. Tevec, however, has the task of finding out how this instrument of propagating knowledge can best be exploited in connection with other means in the case of Quebec. The original character in this experiment is the combination of television and social activation, and of correspondence teaching and research. Moreover, the experiment is characterised by the usage of other important means, such as: data processing, repetition centres, and so-called "home-attendants".

The aim of Tevec is to renew adult education by combining the traditional school subjects with socio-cultural topics: the latter are neither intended exclusively as "nucleus topics", meant primarily to attract the attention of the participants, nor as carriers of school knowledge. On the contrary, they are intended to constitute an integrated component within the framework of an educational programme geared to the mentality, tasks and psychology of adults.

In its function as an experimental model, Tevec is simultaneously a research project designed to allow short-term and medium-term evaluation of the material conveyed, and of the means applied. In this way it is hoped to improve and re-orientate the teaching method employed after a certain period. In addition,evaluation of the project is intended to supply information relating to the training of the specialised personnel for educational television, and concerning the question of how this experimental model should be continued.

---

[1] As the reply to the inquiry made by the "Internationales Zentralinstitut" did, in the case of this project, not arrive in time to allow inclusion in this compendium, a comprehensive report on Tevec will be published in the final edition of the compendium.

THE CURRICULUM

The curriculum of Tevec is to correspond to the general standard of knowlege of the regular educational programme of the 9th grade of elementary school. It is structured in individual subjects as a course in further education.

The curriculum encompasses the three regular, so-called "school subjects": *French*, Mathematics, and English, and presents an introduction to social science. These very different subjects form an inter-related programme of knowlege, intended as a practical help in life: they are to create a closer connection between the individual and the realities of day-to-day life. In the TV programmes themselves, these two subject groups deal closely with the adults' surroundings and with their difficulties in adapting to the conditions of modern life. The experiments conducted by Tevec had the main purpose of finding new techniques and forms for presenting the contents of the courses in accordance with the newly-developed principles.

The Realization of the Project

The pilot project exploits the facilities of a number of communication media, which are closely related, in order to realise its aim (1970).

1. TELEVISION: This is the instrument used to arouse motivation and provide information, by conveying knowledge which effects an expansion of personal scope.

   (a) The two TV stations located in this region broadcast the following programmes regularly: The daily programme lasting 1 1/4 hours, which is broadcast 4 times a week, namely every Monday, Tuesday, Wednesday, and Thursday, and which deals with one subject for one whole week. This modus of presenting a socio-economical subject within a sequence of 4 programmes permits a closer and better connection between the academic part of a programme and the rest of a programme. In addition, it provides for systematical progression, the possibility of altering the design of the individual programmes within each sequence, promotion of a higher rate of participation in the individual programmes, treatment of various aspects of the same subject matter, achievement of better propagation, and, above all, the application of better-adapted and more economical accompanying material.

   (b) the so-called "synthesic programme", which is broadcast for one hour every *Friday*, is a kind of check of the subject matter dealt with during the week. Furthermore, it constitutes an opportunity of giving the correct answers to the exercises on television, and of promoting the other activities of the project.

(c) the "Tele-Club-programme", which lasts for 30 minutes, offers all the students participating in several hundred groups distributed in the region, the possibility of discussing a socio-economic topic. This programme is intended for the local committees and their guests, who are not enrolled at Tevec. After the programme has been broadcast a discussion is held, of which a report is made on the basis of a questionnaire supplied by Tevec. After this questionnaire has been filled in it is returned to Tevec. The reports compiled in this way, and the consequent results, are published by all newspapers in the region.

These programmes were transmitted for a period of 48 weeks, from the middle of January until the middle of June 1968, and from the middle of October 1968 until the middle of May 1969.

II. The CORRESPONDENCE COURSE offers the adult learner the possibility of testing his abilities, by means of work on practical exercises.

(a) The school material: Before a course is commenced, every student receives a brochure explaining the subject matter dealt with in the sequences. He also receives information on the school and questionnaires, as well as punched cards, an electro-statical pencil and return envelopes. The participant is required to answer two questionnaires a week, to transfer his answers to the cards and send them by mail to CEGEP in Jonquière, where they are evaluated by a computer. They are then sent by a telecommunication system to the computer of the Ministry of Education in Quebec, where all data on the students is compiled.

At the end of the first phase of the experiment, the students were given a certificate stating the percentage of correct answers in the exercises they had done. A similar certificate was sent to them again at the beginning of 1969.

(b) The examinations: according to the aims of permanent education, all participants who consider themselves to be good enough to take the exams are invited to sit for the June examinations and for the repetition, regardless of whether they have registered at Tevec or not. Students having passed the exams in French, mathematics, and English, receive a report corresponding to the Junior High School Diploma in the US. If the same students pass the exam in the socio-economic subjects, they receive a diploma certifying their successful participation herein. Participants having passed a limited number of exams receive a certificate for the corresponding subject(s), whatever these may be.

III. Social activation creates the conditions allowing the organisation of active and joint participation of the population, by virtue of the recruitment of "animateurs"1), which is suited to maintain this modus of participation. The entire framework of society must be interested in the endeavours made by certain individuals, and must support these endeavours in order to participate more actively in present-day life.

(a) the structure of participation: The whole experiment is supervised and managed by a committe which has the following main tasks:

(1) The organisation of Tele-Clubs;

(2) The supervision and management of repetition centres.

Each local committee delegated representatives to the district committee, which consists of the representatives of the local committees situated in the catchment area of a regional school authority. The representatives of the four district committees make up a regional advisory committee, which is authorised to inspect all matters concerning Tevec, and to state its viewpoint on the various items.

All in all, the 73 local committees, the four district committees and one regional advisory committee have approximately 1,200 honorary members.

(b) The public inquiry: The committees mentioned before carried out a number of inquiries among the population in May 1967, in order to be able to make suggestions for the contents of the programmes broadcast in the second phase of the experiment. This was necessary, as Tevec compiled the socio-economic topics dealt with in the programmes according to the significance allocated to these topics in the results of the inquiry obtained by the committees. In so doing the extension possibilities of the topics were taken into consideration, in respect to the various terms introduced and established in July 1967.

(c) The conferences: Public meetings were held by the committees throughout the region, in order to re-introduce the educational activities in the beginning of autumn 1967.

(d) The training courses for the "animateurs": In order to meet an expansive need, a series of courses has been conducted to introduce interested members of the committees to the methodology of group work. This campaign was carried out in agreement with the Department for Adult Education of the government authority for permanent education. In this way, some 250 people were made acquainted with the methods of group work and activation in the course of the second phase of the experiment.

---

1) Persons activating adult education in their own social and economical class.

IV. RESEARCH WORK: The Tevec research team does important work, which can be divided into various different categories:

(a) projects analysing the operation of Tevec as an organisation;

(b) examinations of the contents of the programmes;

(c) examinations intended to evaluate the complicated linkage system between the central organisation of Tevec and the participants, and also between the participants and the regional organisations, etc.

(d) sociological examinations of the overall population of the region and the Tevec student body.

The research department has already produced 6 television programmes. A further innovation within the framework of the project was to provide the public with the results of the examinations based on this public.

As yet, approximately 40 reports of examinations, and 6 temporary reports have been published.

V. DATA PROCESSING: Although we do not consider data processing to be as important a factor as the one mentioned above, it still plays a significant part within the scope of our experiment, as it provides the authorities responsible for the project with the feedback of information they require for revising the programmes regularly and continually.

VI. The repetition centres are opened for the students once a week. There, they can discuss their difficulties and receive the expert help of a teacher.

VII. The home attendants: Every participant who has attended a regular school for a period of up to 5 years is given advice regularly by a home attendant. This advice is of a more human than scholastic nature. We have declined from exploiting the services of private pedagogical tutors.

THE ORGANIZATIONAL STRUCTURE

The project has an administrative council, which is composed of representatives of the Ministry of Education, of Radio Quebec, of the Ministry for Financial Affairs, and of the director of Tevec, who carries the primary responsibility for the execution of the project. In addition, there are four work groups: production of the programmes, pedagogics, social activation, and research. The liaison officers of these groups form the coordination committee, together with the secretary general, the ad-

administrative director, and the regional delegate. This committee convenes once a week and sees to the realisation of the aims laid down by the administrative council. About 100 people work within the operation of the project, both in Quebec and in the entire catchment area.

SOME FIGURES

When the project was first launched, 34,532 students enrolled. The survey conducted in March 1968 showed that almost 60,000 view the Tevec programmes regularly.

The percentage of knowledge acquired yearly by the student body is between 8 % and 10 % for 1967.

The Tevec project will cost a little more than $ 3 million (Canadian). If 34,000 adults, who have the educational standard of the fifth grade of elementary school, were led to that of the sixth grade, it would cost $ 15.250.000 without subsidies in the regular school system.

RESULTS

The scholastic results of the experiment will be available when the project is concluded, i.e. in June 1969. Viewed from a social aspect, the project has aroused an unusually high degree of interest among the population of Saguenay/Lac St. Jean, which has continued until the present day.

Direction Générale de l'Education Permanente, Ministère de l'Education du Quebec,
Quebec, January 9, 1969.

The TELEKOLLEG in the STUDIENPROGRAMM
# of the
BAYERISCHEN RUNDFUNK[1]

---

[1] This report is an abridged version of the following publication:
Eckardt, Alois; Schiefele, Hans; Schorb, Alfons Otto
in
Wissenschaftliche Begleituntersuchung, München (1969) 1, 110 pp.

Note: The names of the German educational institutions and facilities occurring in this report have not been translated. However, they have been numbered, and the respective definitions are to be found at the end of the report.

PROGRESS AND EXPERIENCE

I.

The Telekolleg is a teaching system, combining television programmes, accompanying material and group work. It was started on the initiative of a television organisation. The experience of the "Studienprogramm" (Educational and Cultural Study Programme) made in Bavaria, showed that a large segment of the population wished in fact to view not only informative and entertainment broadcasts, but also to actively watch instructional programmes.

The Telekolleg was preceded by a number of general surveys. In these surveys special interest was given to five aspects:

(a) A socio-cultural evaluation of the desire of the population for social advancement, as far as this desire is connected with self-improvement;

(b) a study to determine the extent of lack of professional qualifications at the intermediate level, noted in public services, administration and industry;

(c) a socio-cultural examination of the locations of the main types of schools valid for paragraphs (a) and (b);

(d) an enquiry to determine which types of school, from among those already established, would best meet the needs, arising from paras. (a), (b) and (c) and would be sufficiently receptive to allow new teaching media and methods to be introduced;

(e) an opinion poll to ascertain the study habits of persons taking correspondence courses or participating in the "Zweiter Bildungsweg"(1) (an alternative route of secondary education for people in employment).

The general result which emerges from these surveys and studies may be summarised as follows:

(1) In contemporary society, the demand for information is not satisfied with current events and entertainments; it must be offered the type of knowledge which will ultimately permit greater social mobility. It has also been noted that this wish for social mobility is paralleled by a deep desire for personal advancement and enlargement of scope.

(2) In the Federal Republic of Germany, general educational publicity in recent years has explained to the population at large that in a changing society, intellectual mobility is a better guarantee of social status than material wealth or a too specialised professional experience.

(3) The main impact of this publicity has been to persuade parents to send their children to a secondary (grammar) school from the age of ten, in the hope that they will proceed to a university. Nevertheless, both industry and administration are short of personnel with intermediate qualifications, that is, below the level of "Abitur"(2), and rather at "mittlere Reife"(3) stage.

(4) As only 20% of the population obtain a qualification higher than elementary school level and as there is a growing desire for self-improvement, the school leaving certificates of the "Realschule"(4) or equivalent institutions of the "Zweiter Bildungsweg" are regarded by the general public as a means of attaining social advancement.

The above thoughts, along with many others, resulted in the selection of a type of school for the "first combined teaching system" in the Federal Republic of Germany which meets this desire for social advancement, namely the "Berufsaufbauschule"(5), an institution of the "Zweiter Bildungsweg". The traditional "Berufsaufbauschule" makes it possible for all young people (normally between 15 - 25 years of age) who have completed elementary school, and are in vocational training, to obtain the "Fachschulreife"(6) within three years (two years of evening classes and one year of full time day attendance). The curriculum of this "Zweiter Bildungsweg" was drawn up to meet practical requirements. Its aim is clearly defined and easily understood. The Telekolleg planners decided to transfer the methods of this school to their new, combined teaching system.

II.

How are the three elements of television programmes, accompanying material and group work combined in the Telekolleg?

(1.) The subjects

The Telekolleg curriculum breakdown is as follows, in relation to the number of programmes broadcast:

Subjects		No. of Lessons
German		78
English		78
Mathematics (Algebra; Geometry)		78
History	52	
supplemented by		
Econ. Geography	13	78
Social Science	13	
Physics	65	78
supplemented by Chemistry	13	

Special additional courses	No. of Lessons
Biology	13
Technical Drawing	26
Economics and Business Management	13
Electrical Engineering	13
Chemical Engineering	5
Book-keeping	8

Thus, the complete curriculum of the Telekolleg consists of 468 lessons lasting 30 minutes each.

Anyone wishing to sit for the state examination, must take the five basic courses (German, English, History, Mathematics, Physics) plus additional courses in biology, economic geography, social science, chemistry, economics and business management. The choice of vocational subjects such as technical drawing, electrical engineering, chemical engineering and book-keeping, is made my the student on the basis of his professional aspirations.

The Telekolleg is open to all persons, irrespective of age, who have completed elementary school.

(2.)

The Telekolleg has been in operation since 2 January 1967. The State of Bavaria and the Bayerischer Rundfunk contracted to design this project as an educational institution, offering courses which lead to the "Fachschulreife"(6), recognised as a state diploma. The curriculum corresponds to that of the "Berufsaufbauschule". Contractually, the Bayerischer Rundfunk is required to produce and broadcast the programmes, to prepare and print the accompanying material, and to distribute it to all the participants. The Bavarian Ministry of Education looks after the organization and smooth functioning of the "Telekolleg Days" (group instruction), the teachers' salaries, organization of examinations and, finally, awarding of diplomas. Thus, all participants acquire their knowledge through the Bayerischer Rundfunk from two different sources: TV programmes and accompanying material. The Bayerischer Rundfunk television services has no additional responsibilities, but all other matters are geared to its programmes.

(3.)

A brief description of a typical programme layout follows, to explain how the combined system works.

(a) Every evening Telekolleg broadcasts a new 30 minute lesson in Bavaria. This lesson is repeated the following evening, and the next new lesson is given immediately afterwards. This system can only be carried out on Channel Three (Studienprogramm); it helps the slower students, and also allows the better students to miss a lesson occasionally. These lessons are also broadcast by Channel

One, but are not repeated here due to lack of broadcasting time available.

(b) Accompanying material is sent 6 to 7 weeks in advance to all students, who are officially enrolled. This material comprises between 5,000 and 6,000 pages for the entire series of courses lasting approximately 2 1/2 years. It was specially prepared according to learning psychological aspects: Part 1 is intended to be used during the actual television programme ("Lesson Sheet"); Part 2 (Information) aims at increasing and consolidating knowledge acquired during the programme; Part 3 contains exercises to be corrected by the student himself, and work to be done for the teacher. Participants pay Telekolleg a small fee for this material.

(c) On "Telekolleg Days", usually a Saturday morning, participants meet for five hours. The groups are kept as small as possible (approximately 15 to 20 students) and gather at places located in their own neighbourhoods. Telekolleg groups began in January 1967 and meet in 136 Bavarian towns. This part of the Telekolleg work is organised and financed by the Bavarian Ministry of Education.

After each programme, the students are asked to study at home with the aid of the accompanying material, and to do exercises which they themselves correct. Every three weeks, they must send some homework (the subject matter is indicated in the accompanying material) to their group teacher. The latter corrects and marks the homework and returns it to the students, and discusses the results personally with them on the "Telekolleg Days". This system works very satisfactorily, being based on a balance between the three complementary elements of the Telekolleg method, that is, television programmes, accompanying material and group work.

This general description clearly shows that the "Studienprogramm" of the Bayerischer Rundfunk supplies all teaching materials - that is, television programmes and accompanying material - to the student; the consequent work, however, is left to the personal contacts between student and teacher, which are supervised by the state. Participants in the "Telekolleg Days" have no costs apart from travel expenses.

(4.)

The legal status of radio and television in West Germany requires the jurisdiction of both state and radio to be defined. Broadcasting is in no way subordinate to the state and, therefore, cannot be obliged to assume duties which fall to the state. If it does so, it is completely voluntarily. If it offers a teaching programme which may lead to a state diploma, this particular function must be given legal standing to preclude the possibility of state infringement of broadcasting freedom. The agreement signed between the state and Telekolleg legalises co-operation between the two parties in a project leading to a state diploma. The agreement was signed in November 1966. It stipulates:

(1) The Bayerischer Rundfunk undertakes to carry the entire "Berufsaufbauschule" curriculum, using all available methodical and didactical resources. In particular, it agrees to produce and broadcast the instructional programmes. The Bayerischer Rundfunk shall also prepare all the accompanying material required for elaborating the programmes, and send it to all course participants accordingly.

(2) The Bavarian State calls upon all "Berufsaufbauschulen" and similar institutions, to co-operate with Telekolleg. It undertakes to provide the necessary educational organisation, in order that the agreement can be implemented. The Bavarian State supervises group teaching and is responsible for all teacher student consultations; it is further responsible for ensuring that written work sent in by participants is corrected and graded, and it organises the examinations in accordance with directives issued by the Bavarian Ministry of Education.

At the end of 1966 the Bayerischer Rundfunk launched a two-stage publicity campaign for Telekolleg enrolments. Initially, general information was provided by press, radio and television. All persons interested were, concurrently, asked to contact the Bayerischer Rundfunk for more precise information. As a result of this campaign, 30,000 replies from persons living in Bavaria were received. In stage two of the campaign, all those who reacted received more detailed information together with an enrolment form. Almost 50 % of those, who originally replied (namely 14,455 persons), returned their Telekolleg enrolment forms with the fee of DM 25. The organisers fully realised that they could not expect all participants to be genuinely interested, or to be able to study daily for two and a half years. Of the 14,455 persons enrolled, 8,500 attended the first "Telekolleg Day" which was organised in 136 towns in Bavaria. Both forecasts and surveys suggested that this attendance was very high. During the first three months, the number of participants dropped to around 5,000, and remained stable until September 1967. The first series of intermediate examinations was held from September to December 1967. At the end of this series of courses (December 1967) it was revealed that approximately 3,700 students had taken the examinations.

III.

A Review of the First Months' Experience

(a) During the first months of operation of Telekolleg, the vital aspect of participation in the "Telekolleg Days" - held every third Saturday - was not taken seriously enough.

(b) Although the participants were keen to learn, they had some difficulty in adapting, during the first eight weeks, to the unusual combination of television broadcasts and accompanying material. Moreover, this initial feeling of uncertainty was boosted by the method of presenting the material in some subjects, which was very different from the traditional educational approach, and by the newness of the contents taught; in fact, this uncertainty was noticed whenever a new subject was introduced, although it decreased constantly. We might conclude that the initial difficulties with this new form of teaching disappears all the more rapidly as the television method approaches the more traditional method, but they persist if this does not occur. However, this feeling of uncertainty is in no way linked with the immediate academic achievement. It should also be mentioned that despite this feeling, the students were able to adapt themselves to this new combined system of learning relatively quickly.

(c) The teachers supervising the "Telekolleg Days" (around 800 in Bavaria) were not briefed for their new assignments by television officials, because of insufficient time and also lack of experience in this field. Although the teachers were basically in favour of the Telekolleg system, they long criticized the teaching methods used on the programmes. They were extremely tempted on "Telekolleg Days" to establish a counter-balance to the television programmes and the television teacher. These gatherings prove most effective when the teachers no longer repeat what has already been presented on television, but run them as discussion groups and help students clear up any shortcomings by individual consultations.

(d) The publicity campaign informed the first participants that they would have to take all the courses in the programme. This requirement proved to be too rigid. Although the first students to enrol in January, 1967, adhered to this principle, three categories of students began to emerge after a few weeks, who differ considerably in their degree of involvement in the programme, and in their aspirations.

Category A, attracted by a state diploma, takes all the courses, and participates in the "Telekolleg Days"; category B is only interested in certain subjects, but still wishes to participate in group work in these subjects; category C wishes simply to receive the accompanying material without doing any work for outside correction, and without participating in group work.

Category A profits from the system of co-operation with the Bavarian Ministry of Education and from the "Telekolleg Days". Category B can resort to institutions of adult education in particular as a means of improving their knowledge. Category C consists mainly of parents, who found material in the programme of value to help their children, and of those, who, although interested in certain subjects, did not wish to go as far as to take the examinations. Additionally, a good many teachers used the Telekolleg system as a point of departure for organising their own lessons and for revising their own methods of instructions.

(e) At the beginning of each course, all students were asked to explain why they had enrolled. A subsequent comparison of the reasons given, with the degree of determination of the students to sit for the examinations (i.e. their attitude to outside supervision and critical appraisal of their work) was highly significant; it revealed that those students motivated by reasons of social advancement, were keener to take the examinations, and, indeed, many more did so, as compared with those simply interested in improving their knowledge. (This is also why only 20 % of Telekolleg participants were women, who are less motivated socially or professionally.)

During the course of 1967 the initial consequences were drawn from the experience made. Thus, as a result of the above findings, three categories of enrolments were recommended for September, 1967, corresponding to the three groups already mentioned. In September, 1967, 9,497 new students enrolled for the second series of courses on the following basis:

Category A: 3,452
Category B: 1,414
Category C: 4,631

For category B, interested only in certain courses, a new type of co-operation was established with adult education centres; in this case, mostly the "Volkshochschule" (adult evening school) was used. As in the case of category A, students in category B must return the enrolment form to Bayerischer Rundfunk, specifying the courses they wish to take. The "Vokshochschulen" then organize, as far as possible, special courses for the desired subjects. In Bavaria, 58 courses have been organised for Telekolleg in 25 "Volkshochschulen". The most popular subject has been English. The number of work group meetings under the "Volkshochschule" system still varies; however, the groups tend to gather more frequently than those in category A, that is mostly once a week. It would be premature to assess the greater use of these more frequent meetings.

IV.

Apart from the question as to the various types of motivation for participating, the social background of the student body was of great interest. A survey of a representative sample from this group revealed the following:

Approximately 80 % of the participants had only an elementary school education;

Approximately 80% were either workers or salaried personnel;

Approximately 79% were men against only 21% women: the reasons for this unusual disproportion have not yet been analysed.

About 21% of the students stated that their father is or was employed in agriculture or forestry. This group was over-represented as were others similarly affected by problems of job reorientation. Telekolleg offers these groups, in fact, the possibility of obtaining new professional qualifications.

Telekolleg was not conceived as simply a method of "supplying education"; it was designed primarily as a means of social advancement. This fact emerges clearly from the following data on age distribution:

22 % of the students are less than 18

22 % of the students are between 18 and 25

38 % of the students are between 25 and 35

18 % of the students are over 35

This distribution shows that many students, having reached the limits of their own particular social advancement offered by their profession, were attempting to move further ahead via this educational opportunity. This is particularly true of the 18 to 35 age-groups.

The distribution of participants between town and country was of special interest to the organisers of Telekolleg. A considerable disparity has been noted between forecasts and actual results. The urban population (particularly in Munich and Nuremberg) reacted much more positively than the rural population: it had been thought that enrolments would come chiefly from persons living far from an equivalent school. While urban students were more numerous than expected, they subsequently proved less persevering than country students. On the other hand, the urban population still remained over-represented, as very few people living in towns and villages of 500 to 2,000 inhabitants enrolled for the Telekolleg. The reason for this surprising distribution is not yet known to us. However, an empirical investigation is in progress. The number of students in towns of other sizes is represented as forecast. This sociological distribution relates to enrolment when Telekolleg was started, but no similar inquiry into the number of students remaining at the end of a year has yet been completed. Other sources of information lead us to think, however, that districts where there are no large towns produce a higher percentage of conscientious Telekolleg students.

After nine months (September until December 1967) the official intermediate examinations enabled a first check to be made on the knowledge acquired and produced further information on the drop-out rate. It may be assumed that the weakest students voluntarily abstained from sitting for examinations which they knew they were bound to fail; this may be the explanation of the excellent examination results. In fact, the average mark in all subjects was higher than that obtained in the corresponding traditional schools. The following were the average marks obtained by the 3,800 candidates:

German(7): 2,62
English: 3,15
Mathematics: 3,47
Physics: 2,71
History: 3,03
Biology: 2,74

The following results were achieved in the corresponding examinations held in the second series of courses, lasting from April to July 1968

German: 2,66
English: 3,06
Mathematics: 3,09
Physics: 3,17
History: 3,28
Technical Drawing 2,76

V.

Marginal Effects of the Telekolleg

(a) By its programmes, Telekolleg has made parents more knowledgeable about their children's school curricula; this constitutes a truly valuable connection between school and family.

(b) For teachers from all types of school, Telekolleg not only constitutes both an aid and an instrument of further training but also, more specifically, familiarises them with new teaching methods. That is especially true for teachers of science subjects, a branch where teaching methods have changed extensively, creating problems for teachers who themselves passed their examinations perhaps thirty years ago. As Telekolleg had voluntarily opted for the most up-to-date methods of teaching these subjects, tensions came to light and their influence was quite clearly felt. In fact, teachers in Bavaria who participated in the "Telekolleg Days" (about 800) were strongly opposed to the affine geometry introduced into the programmes, but subsequently accepted it. This method has since been included in the new edition of the Manual of School Curricula published by the Bavarian Ministry of Education. The participants, on the other hand, had less difficulty in adapting to our method as the examination results prove.

(c) Apart from these problems directly related to teaching, Telekolleg has become a highly appreciated part of popular television broadcasts, as indicated by the number of sets functioning while these programmes are on the air. Although the broadcasts on Channel One are transmitted at an off-peak viewing time in Germany (6 p.m. on weekdays), 210,000 television sets are regularly turned on for the Telekolleg programmes. It should, however, be noted that this number varies considerably according to the subject of the broadcast:

Telekolleg Physics	210,000 sets	= 10.5 %*
Telekolleg History	210,000 sets	= 10.5 %*
Telekolleg English	190,000 sets	= 9.5 %*
Telekolleg Mathematics	120,000 sets	= 5.7 %*
Telekolleg German	100,000 sets	= 5.2 %*

* Percentage of owners of television sets in Bavaria.

VI.

(a) With its 468 educational Broadcasts and some 6,000 pages of accompanying material, the Telekolleg experiment represents an educational opportunity which, in addition to its primary aim, may be used for many other purposes and stimulate lively interest. It is possible, for example, to employ certain parts of the system for educational ends other than the present ones, and in particular as complementary studies for persons already holding diplomas and in the context of the vocational retraining process. Telekolleg has up to now been closely linked to the West German school system. It may be employed, either wholly or partly, as a medium of further training in industry. These possibilities cannot be discussed here in detail. However, discussions are already in progress to work out additional uses for this scheme without entailing any significant extension or increase in total volume. This possibility may be conceived of in various ways in the manner of the "building-brick-system", particularly as the adaptability of the accompanying material makes it possible to lay the stress on new aims of this combined model.

(b) Telekolleg constitutes a form of economical educational aid. After one year's operation, estimates show that Telekolleg students cost the state one sixth of the sum spent so far by traditional methods of schooling to provide pupils with a similar standard of qualifications. From the point of view of educational economy, this confirms the long-held theory that it is more advantageous to convey the educational opportunity by modern means and methods than to extend the existing school system to the most isolated regions. This thesis does not advocate an alternative teaching method but maintains that Telekolleg is a worthwhile complementary system. In addition to the economic and financial advantages a considerable staff saving has been effected although that cannot yet be estimated numerically. It will thus be possible in future, in conjunction with a system of combined education, to employ the credits system which meets the mobility requirement of modern industrial societies more satisfactorily than does the rigid system of traditional schooling.

(c) The possible usage of this system in the developing countries is now being investigated. Delegations from South America, Africa and Asia, as well as from the less industrialised European countries, are frequently received at Telekolleg headquarters in Munich. Contacts are increasing and will no doubt lead to transposition of the system for other purposes.

(d) The Telekolleg system will most probably be adopted by other Federal German Länder in 1969. Rhineland-Palatinate, Baden-Württemberg and Saarland launched a Telekolleg programme on April 7, 1969. Switzerland has been broadcasting a great deal of the Telekolleg curriculum since September, 1968, and Austria has also indicated lively interest. Moreover, since January, 1968, the Telekolleg English course has been retransmitted by the television network in Hesse.

(e) The existing experience made with Telekolleg and the great interest shown by the public have caused the Bavarian State Ministry for Education to offer a third series of courses, which began in January, 1969.

The results and facts mentioned in this report constitute a survey of the experience made by the management of Telekolleg. Reports submitted by the teachers supervising "Telekolleg Days", general statistical surveys, an innumerable number of discussions with the students and letters received from the students, proved to be valuable sources of information.

Nevertheless, knowledge gained in this way is not sufficient to provide detailed information as to Telekolleg in the variety of its functions and possibilities. Thus, statistical and scientific surveys have been carried out ever since the first programmes were broadcast. Some details about these surveys are stated in the following.

SOCIOLOGICAL FACTS

I. Assumptions Underlying the Work of Telekolleg

The plan to establish Telekolleg came from personalities well informed of the educational situation and strongly interested in all developments in the educational system. Although the decision made by these personalities was based to a large extent on data derived from sociological research, the undertaking as such does not rest on scientific calculations, but is an educational and political risk. Probably, this educational institution would not have come into existence in another way. In spite of all the risks - assumptions and expectations (hypotheses) underlie the project, which, as the enterprise progresses, will either be confirmed or proved wrong. Such hypotheses were set up as to the composition of the participants in view of their age, sex, profession, and geographical distribution, and are also concerned with their socio-cultural conditions, as it is assumed that many of the participants were not able to realise their right of education by means of regular institutions. These hypotheses provide recommendations as to the best method for the programmes and for all other course components. Furthermore, the assumption is made in connection with Telekolleg that among those students who have so far not attended a school for further education there are some participants who have the ability of achieving a higher educational aim, such as the so-called "Fachschulreife"(2).

In the same way as the establishment of Telekolleg was an important educational and political decision, the examination of the hypotheses underlying Telekolleg, and the effectiveness of television teaching, are in turn a problem of objective research. Important items of research result from the educational intention and purpose of Telekolleg and its work. Obviously, the overall student body must be examined as closely as possible as to its composition, but the programmes broadcast, the written accompanying material, and the methods used for the "Telekolleg Days", must also be checked as to their effectiveness.

First of all, the hypotheses must be formulated. To a certain extent they will - as is quite normal for such an undertaking - prove to be incorrect. In that case they must be altered accordingly or abandoned completely, so that the conclusions for Telekolleg resulting from these hypotheses can be drawn. This is an empirical process. In view of the complex structure of the enterprise, necessary corrections only become evident progressively, and they take some time to come into effect. A problem encountered by the scientific research work accompanying Telekolleg is to gain reliable insight into the system as quickly as possible, so as to improve the institution as such. In so doing, it is essential to take the students into consideration, for whom Telekolleg was conceived and launched in the first place. In other words, the continuity of Telekolleg must be maintained. The assumptions underlying the survey submitted (which are by no means identical with the considerations of the initiators of Telekolleg) have been extracted from previous socio-educational research work and examinations. These assumptions serve as the basis for the questions to be filled in by the students in the registration form - apart from the usual questions as regards personal data. In the following, these assumptions have been listed in the form of hypotheses. Each hypothesis is then discussed in connection with the statistical data and material.

(1.) The Telekolleg students are mainly young people still engaged in vocational training, or having just completed their training.

(2.) The Telekolleg students are primarily employed in agricultural and craftsman professions, or are semi-skilled or unskilled workers.

(3.) The rural population constitutes a larger relative segment of the total student body than the urban population, as corresponding educational facilitaties can usually be found in towns.

(4.) The regional distribution of Telekolleg participants is uniform. Concentration of participants is to be found in the rural catchment areas of large industrial centres.

(5.) The average Telekolleg student has only attended elementary school and, thereafter, vocational training school. There is only a low number of participants having a further school education.

(6.) A long way to and from work prevents people from participating in Telekolleg. Thus, the majority of the students have a short way to and from work. People having to travel long distances are those who use shuttle services, that is, those who live in rural areas. This in turn reduces the probability of assumption Nr. 3.

(7.) Women are affected to a greater extent by the regional and social shortcomings of the educational system than men. In the social classes appealed to by Telekolleg the opinion that a sound vocational training is not as important for women as it is for men is still quite usual. In higher and better-educated classes, however, vocational training for women has more or less reached a degree of equality with that for men. Thus, the percentage of female Telekolleg students is expected to be relatively high.

(8.) The "Telekolleg Days" are attended primarily by students having only a poor educational background. It is also assumed that these "Telekolleg Days" appeal more to young people, who still accept classroom teaching methods, than to older generations.

(9.) It is easier for students living in large or relatively large towns to attend the "Telekolleg Days", than for students living in small communities, as the latter may possibly have to travel a long way. This is another factor which can influence attendance of the "Telekolleg Days".

(10.) Professional and vocational motivation is the most frequent for participation. It is assumed that approx. 50 % of the participants aim at professional advancement, improvement and economic advantages.

A general comment should be made before elaborating on these hypotheses in detail. When Telekolleg began operation the Bayerischer Rundfunk announced that more than 14,000 students had registered. The fact, that a far smaller number of students than the above figure attended the first "Telekolleg Day" quickly led to premature negative predictions for the success of Telekolleg. When the accompanying scientific research work was commenced, a new registration sheet had to be drawn up and mailed to the students for reasons of data processing. By this time, i.e. at about the middle of the first series of courses, exactly 7,448 students sent in the new enrolment form. Thus, although the drop-out rate was approximately 50 % of the initial number of registrations, this rate does by no means need to be interpreted as negatively as is sometimes the case. The following reasons led to the rapid reduction of the high initial number of registrations:

(1.) The advertising campaign promoting Telekolleg induced many potential students to register, especially as it reached a high percentage of the population. As, however, it became evident after a few courses that Telekolleg is not an easy method of attaining further education, many of the students gave up without even having made any serious efforts. Participating in Telekolleg does definitely require an initial motivation of the student corresponding sufficiently to the aims and possibilities of the system. The desire for further education and social advancement and the suitable preparedness to study and make the appropriate efforts cannot be developed from the courses offered. Although a good methodological design of the courses can counteract continual loss of motivation, especially by gearing the courses to the students' requirements and conditions and making them as interesting as possible, nobody can do the students' own work, can make efforts and sacrifice spare time in their stead.

(2.) It became evident that not all of the people interested in Telekolleg wanted to participate in the complete series of courses, or intended to take the final examination. A large number of students only want to learn English or mathematics or physics. Accordingly, it is these students who do not attend the "Telekolleg Day".

(3.) Some of the people interested in Telekolleg only want to further their general standard of education and thus exploit Telekolleg as a possibility of sensible spare time occupation. People only wanting to view the programmes and intending to do without the written accompanying material do not even have to register.

(4.) Naturally, there are also people interested in Telekolleg, for whom the demands and requirements, the communication, and the methodical and didactical layout of the system are too difficult, as their school background has not established the necessary prerequisites for participation. In other words, it might be said that these would-be students have not reached the elementary school leaving standard. Of course, this need not necessarily be their own fault. Many of these people had to "give up" in the course of their school education, although they would have had the will to continue. In order to provide this group, too, with a possibility of participating and to promote them from their present standard, the didactical and methodical structure and process of Telekolleg must be altered accordingly. If, instead of promoting the students and their abilities, Telekolleg were to attempt to merely select the best potential participants, the system would abandon its own intention and educational justification.

In the case of the second series of courses the modus of participation was branched:

Category A leads to the so-called "Fachschulreife"(6) and includes all subjects.

Category B is for students only participating in certain specialized courses in connection with courses run by the "Volkshochschule" (adult evening school) or by another institution of adult education.

Category C is intended for participants not wanting to take a formal examination at the end of a course, and who thus do not subject themselves to any study requirements.

A total of 9,497 students registered for the second series of courses.

3,452 students (36,35 %) registered for Category A

1,414 students (14.89 %) registered for Category B

4,631 students (48.76 %) registered for Category C

The results of the registration figures for the second series of courses show the various degrees of participation in Telekolleg. They also confirm the assumptions made before as to the reasons for the drop-out of students between registration and the first "Telekolleg Day" in the first series of coures. As, in the case of the first series, only one form of participation was provided, many of the registrations came from potential Category C participants. Consequently, these students did not attend the "Telekolleg Day" and did not register for the exams.

The same 10 criteria were covered by the two registration forms. These criteria, and their correlative and statistical evaluation, serve as the basis for the following chart. This chart shows the 10 criteria covered by both of the registration sheets and the corresponding absolute figures for the first series. The first four questions: age, number of inhabitants of the place of residence, extent of school education, and distance to work, were each combined in two points, as this facilitated the calculation. 7,000 of the total of 7,448 registrations for the first series of courses were included in this evaluation. All data refer to this sample figure and the date of the evaluation. In the case of the first series of courses the evaluation took place after about 6 weeks (i.e. after about the first half had been completed), in the case of the second series it was conducted at the time of registration. These numbers have in the meantime changed owing to drop-out of students. One of our next reports will provide more exact information as to these drop-outs.

Chart 1: Number of students in 10 alternative criteria - First series of courses.

(When added, the numbers in the two columns do not necessarily amount to exactly 7,000. This is because some students did not answer the questions at all, or answered them so carelessly that they could not be used for the evaluation.)

1. Age	under 22 2,262	22 and older 4,733
2. No. of inhabitants of place of residence	up to 3,000 (rural area) 2,145	more than 3,000 (urban area) 4,344
3. Extent of school education	elementary school and vocational training school 5,180	secondary school 1,796
4. Distance to work	up to 30 minutes (short distance) 4,129	more than 30 min. (long distance) 1,461
5. Sex	male 5,499	female 1,478
6. Joint viewing of the TV programmes	yes 1,461	no 5,485
7. Joint work on the written material	yes 725	no 6,189
8. Regular participation in the "Telekolleg Days"	yes 4,937	no 2,015

9. Participation in "Telekolleg Days" for vocational advancement, to improve vocational standing, etc.	yes 5,058	no 1,723
10. Can you receive the third TV programme on your set?	yes 4,459	no 2,518

In order to gain further information on the students, each of the 10 questions (with two possible answers) was correlated with each other question. The results of this "four-field-correlation-system" were used for the following interpretations of the 10 hypotheses, as far as these are significant as regards the 1 % theory.

II. Confrontation of the Hypotheses with the Factive Situation

Hypothesis 1: The Telekolleg students are mostly young people still in vocational training or just having completed their training. The absolute numbers in the above chart show that more than half of the students participating in the first series of courses were 22 and older. The peak group of students are those between 25 and 29 years of age (25.42 %). The group of students under 22 is concentrated in the sub-division of those between 15 and 19 (26.18 %).

In the case of the second series of courses an even greater majority of students over 22 has been registered. This fact was primarily due to the new repartition into three categories. The age distribution of the students participating in category A was about the same in the second series of courses as in the first. The main age group of those over 22 is again 25 to 29 (category A: 27.74 %; category B: 25.4 %). Students participating in category C are in general somewhat older. It is interesting to note, however, that the group of students between 15 and 19 is smaller in the case of the second series. In the first series this group amounted to 26.18 % of total participation, and was thus the largest group of all. In the second series the 15 to 19 year olds represent 22.02 % of the students participating in category A, and are the second largest group; in categories B and C they only hold fifth place.

Compared with the "Berufsaufbauschulen" the Telekolleg has had older students from the very beginning. It can be assumed that these students did not anymore consider a regular school to be an adequate educational institution, whereas the younger students advanced directly from elementary school to the "Berufsaufbauschule"(5), via vocational training school. A further reason for the increase in the average age of the Telekolleg students may well be the fact that young people have not only continued their schooling directly, but are also more dependent on a regular school organisation. People above a certain age prefer to deviate from a regular school programme; they are confident that they can study successfully on a primarily independent basis. In this way Telekolleg proves to be a possibility for further education for people having long passed school age. Telekolleg appeals to young adults to a greater extent. The number of young people participating in a category A has decreased further in the transition from the first series of courses to the second.

If one views the age distribution of all the students in 5-year groups, the breakdown conveyed is somewhat exacter.

The largest number of relatively old students is to be found in categories B and C. In fact, in category C the age group of students over 50 years is the largest. Thus, it can be stated that the number of young students is in general decreasing, while that of older students is rising.

The question whether certain age groups are over or under-represented among the Telekolleg student body can be answered roughly by regarding the percentage of these age groups in the overall population.

Approximately 3,390 students from the younger age groups, that is between 15 and 30 years of age, (from a total of some 7,000 students, i.e. 48 %) could in this way be expected for the first series of courses. Actually, the number of students is greater; with 4,759 students it equals 67 %. The fact that the older generations are represented to a lesser extent in the overall Telekolleg student body than the younger age groups as compared with the percentage of these two categories in the total population is understandable and actually quite natural in view of the educational aim of Telekolleg. It should also be mentioned that the younger age group within the category of students between 15 and 30 is represented to a higher extent than the older group.

According to the percentage of the various age groups in the total population the 15 - 22 year olds should amount to 20 % of the total Telekolleg student body (this would equal 1,420 students). In actual fact, however, this group amounts to 33 % of the student body (2,370 students). Roughly the same is found to be the case for the students between 22 and 30 years: 1,970 students or 28 % could be expected, whereas 2,383 or 33 % took part in reality. Thus, about two-thirds of the Telekolleg student body is older than 15 and younger than 30. If this category is extended to include all students of up to 34 years, it even comprises three-quarters of the total student body.

In this way it becomes evident that a relatively high percentage of participants is made up by young people still engaged in vocational training, but who nevertheless have further vocational ambitions. Another over-represented group consists of students who have already completed their vocational training and have gained some appropriate experience, and who now have recognized the advantages offered by further training.

A further interesting aspect in this connection is the fact that the group of young Telekolleg students (under 22 years) is made up primarily by people living in rural areas (first series of courses: $r = 0.22$; second series of courses, category A: $r = 0.22$), whereas students of 22 years of age or older mostly live in towns. Young students participate regularly (first series of courses: $r = 0.22$; second series, category A: $r = 0.05$), whereas the participants in the older age groups do not. The young age groups much more often aim at vocational advancement by means of the Telekolleg courses (first series: $r = 0.20$; second series,category A: $r = 0.11$).

Hypothesis 2: The Telekolleg students are primarily employed in agricultural or craftsman professions, or as semi-skilled or unskilled workers.

The surveys carried out show that 5.28 % of the students participating in the first series of courses, and 3.07 % of the participants in category A of the second series are employed in agriculture and forestry, whereas this vocational group constitutes 21,5 % of the total population. People working as smiths, mechanics or in similar technical professions constitute a higher percentage of the student body in the first series of courses and in category A of the second series, than was expected by virtue of the statistics.

Furthermore, it became evident that a few craftsman and technical professions alone account for 27.19 % of the student body in the first series, and 25.21 % of category A in the second series.

As mentioned, however, employees working in agriculture and forestry are represented to a lesser extent in all categories than could be expected due to statistics.

It is, above all, this drastic under-representation of the said professions that induces criticism of Hypothesis 2. None of the assumptions formulated herein are completely correct. It was wrong to expect that the agricultural professions would exploit the possibilities offered by Telekolleg. But also some sub-divisions of the craftsman professions are not represented in as large numbers as expected. Administrative and organisatory professions form a very large proportion of categories B (27.24 %) and C (21.79 %) and exceed expectations by far. Perhaps it is correct to assume that people employed in these professions are especially willing to further their education, but that only part of the curriculum of Telekolleg corresponds to their educational intentions and desires. Roughly speaking, one can say that Telekolleg appeals especially to employees in more specialised professions, or in other words: people working in these professions regard Telekolleg as an immediate possibility for vocational and social advancement. The following explanations could be used for defining the over or under-representation of vocational groups within the total framework of the student body:

a) The vocational groups with low representation rates form a concentration of people with a low degree of vocational motivation and the corresponding social laxness. - The opposite group consists, on the other hand, mainly of status-conscious and mobile people with a high degree of motivation.

b) The various professions provide varying possibilities of vocational improvement. The under-represented professions hardly offer chances for advancement or do not provide a (financial) incentive stimulating such advancement. - On the other hand, the vocational groups with a representation rate exceeding the expectation indicate signs of pressure exercised by increased professional requirements and knowledge. Furthermore, these groups are characterized by incentives and possibilites for advancement, as the professions in question merge into the higher organization systems, for example in industrial companies.

c) Telekolleg itself is connected specifically with certain professions. People working in vocations with low representation rates do not see any connection between the knowledge conveyed by Telekolleg and their own work. - In a contrast, however, the opposite applies to the over-represented vocational groups.

d) Even the television presentation of courses, which differs a good deal from regular school teaching methods, and results from the possibility of viewing the programmes at home in a private and individual atmosphere, could not overcome the existing regional and social barriers; or if so, only to a small extent. Especially people living in rural areas employed in agriculture and forestry did not resort to the educational possibilites offered.

The present material cannot serve to enable the decision whether or not one or several (which appears more likely) of the above explanations is suited to define the conspicuous distribution of professions among the Telekolleg students. There are obviously other reasons for this, which will not become evident until further research has been carried out. Nevertheless, the material we have compiled does include some precise information on explanation d).

The assumption that the said barrier is characteristic of a certain social class is supported by an examination of the distribution of professions of the fathers of the entire student body. If, in the case of the fathers, the same professions were so under-represented as among the students, this would be another factor indicating the existence of a social class barrier.

However, as examinations show it is not the profession of a student's father and the social class related hereto, which determine primarily a person's participation in Telekolleg, but this person's own profession. The fact that a considerably

higher percentage of fathers work is in agriculture and forestry than the percentage of Telekolleg students gives rise to the assumption that progressive young people in this group strive for advancement mainly by taking up other professions.
The under-representation of these professions in the student body thus appears to be somewhat more drastic than in reality, as the number of Telekolleg students in this group relates to the overall number of people working in agriculture and forestry. However, it is clear that the number of fathers belonging to the said population group is greater than the number of participants. Thus, the number of participants to be expected by the statistics is too high. This relationship between the two generations is probably a symptom for the continual decrease of a number of young people working in agriculture and forestry.

Hypothesis 3: The rural population constitutes a larger relative segment of the total student body than the urban population, as corresponding educational facilities can usually be found in towns.

Chart 1 already made evident that twice as many Telekolleg students live in towns than in the country. This fact is remarkable, when considering that 45 % of the population of Bavaria lives in rural areas.

The aim of Telekolleg, to offer people living in the country the advantage provided by such an educational facility, does not seem to have been accepted by this group of the population in the same way as in towns. This may be because the "Fachschulreife"(6) does not necessarily appear desirable to young people living in the country, even if they are willing to further their education. It will possibly be necessary to examine more precisely in which way and in which direction the desire for social advancement can be approached among these segments of the population. Numerous measures are needed to activate the educational drive of these people, who so far have considered traditional immobility as the most promising principle of life. It has been mentioned repeatedly that Telekolleg is orientated to practical education and thus does not appeal to such groups who - with or without justification - do not consider the knowledge and material offered to be useful. Apart from and together with Telekolleg (and naturally also in conjunction with other educational institutions), more varied and versatile course offers and methods are required, to mobilise a higher degree of desire for social advancement and education and to achieve a superior standard of training.

When discussing Hypothesis 1 it was mentioned that students living in the country mostly belong to the younger age groups. Compared with the urban population the people living in the country have an inferior school background (first series of courses: $r = 0.11$; second series, category A: $r = 0.07$). The same correlation has also shown that of the rural population it is especially the young people who have a poor school background (first series: $r = 0.13$; second series, category A: $r = 0.14$). There is no difference between the rural and the urban population as to their motives for participating in Telekolleg.

Hypothesis 4: The regional distribution of Telekolleg participants is uniform. Concentration of participants is to be found in the rural catchment areas of large industrial centres.

It has become evident that this assumption is not correct. In order to gain a more exact impression, the student body was broken down into groups of students living in 10 different sizes of towns.

This breakdown clearly shows that especially communities with 1,000 to 2,000 inhabitants lay considerably behind the statistical expectations. In small towns with 3,000 inhabitants this gap between statistics and actual participation is considerably smaller. In towns with a population of 5,000 to 50,000 people actual participation was almost invariably greater than was to be expected. However, the decrease of the participation rate observed in the case of towns with up to 100,000 inhabitants cannot be explained before further information is available (this only applies to the first series of courses.)

It can be assumed that the communities with less than 3,000 inhabitants are mostly agricultural settlements. The fact that this segment of the population is under-represented has already been pointed out in this report, and is merely confirmed here. As a contrast to this low participation rate, it is interesting to note that participation is not below statistical expectations in communities of up to 500 inhabitants. In towns with a population of more than 5,000, there are relatively large craftsman firms or industrial plants. These lead to an influx of employees working in new professions, who then show interest in Telekolleg.

In order to establish an exact survey of the regional distribution of the student body, the per mille share of the participants as compared to the total population of Bavaria was calculated. This calculation was geared to the various administrative districts ("Landkreise") in Bavaria.
The number of Telekolleg students per administrative district (Landkreis) was based on the postal district numbers. Where these postal districts did not coincide with the administrative districts, several of both of these areas were grouped, in order to avoid deviations. As the survey showed, the average per mille share of all administrative districts was 0.676. The standard deviation from this average was 0.270. If a "Landkreis" has a per mille share exceeding the average figure by the standard deviation or more, it is termed "over-represented". If its per mille share is, however, below the average by the standard deviation of 0.270 or more, this "Landkreis" is "under-represented". The corresponding figures in relation to the second series of courses were: average in per mille = 0.759; standard deviation (per mille) = 0.300).

The survey shows that apart from Upper Bavaria and Middle Frankonia all other governmental areas are more or less under-represented. However, when taking the various sizes of the towns into consideration, in order to explain the distribution of the student body, it becomes evident that the two large cities Munich and Nuremberg are the reason for the over-representation of the said governmental areas. Nevertheless, the high participation rate in Upper Bavaria is not only due to Munich alone, but is also caused by the fact that most of the administrative districts which are over-represented are in this part of Bavaria. Perhaps this phenomenon reflects a feeling of local patriotism, as not all parts of Bavaria identify themselves with Munich, where Telekolleg is produced and broadcast, as much as Upper Bavaria.

Hypothesis 5: The average Telekolleg student has only attended elementary school and, thereafter, vocational training school. There is only a low number of participants having a further school education.

As already indicated in Chart 1, this assumption is not completely wrong. However, the number of participants with higher school education in the first series of courses was far higher in the second series. It may be assumed that television courses are considered to be their second chance by persons who had to discontinue their regular education at secondary school level. It is also possible that pupils at secondary schools exploit Telekolleg as a facility for repetitional lessons. 11.90 % of the students in category A of the second series of courses still attend a regular school. In the case of the first series there is a positive connection between students with a small degree of school education and the students attending the "Telekolleg Days" regularly (r = 0.12). The same applies to the second series: Here, too, young people with a poor school background in category A attended the "Telekolleg Days" more regularly than others (r = 0,06). Female students, on the other hand, attend the "Telekolleg Days" more often if they have a better school education (r = 0.12). The displacement of the student body towards an increase of participants with further education, which took place in the second series, is also of importance in another respect: Whereas students in the first series of courses stating that the motive underlying their participation was vocational advancement, usually had a poor school education (r = 0.15), this was not the case in the second series. As far as young students are concerned, whose participation in Telekolleg is vocationally-orientated, a correlation of r = 0.15 applies to those having attended secondary schools, and r = 0.10 to those with an elementary school background.

Hypothesis 6: A long way to and from work prevents people from participating in Telekolleg. Thus, the majority of the students have a short way to and from work. People having to travel long distances are those who use shuttle services; that is, those who live in rural areas. This in turn reduces the probability of assumption Nr. 3.

Chart 1 shows that Hypothesis 6 is correct in principle. In addition, our inquiries indicated that women presumably have to travel longer distances to work than men. The fact that people needing 30 minutes or more to get to work only constituted a quarter of the student body in the first series of courses and not quite two-thirds in category A of the second series should give rise to some reflections. The easiest explanation is that there are three times as many people in Bavaria with short distances to their places of employment, as with long distances. Thus, according to this explanation, the group with long distances is represented quite adequately, and there is no further reason for surveys or research. In fact, there are some 1.2 million employees in Bavaria using shuttle services, implying a journey to work lasting 30 minutes or more, compared with a total of about 4.7 million employees. (People needing 30 minutes or more to work, but not using shuttle services, are not included in this figure. However, this group is hardly of importance.)

Despite the above explanation it should not be forgotten that employees using shuttle services travel from their rural place of residence to town because the vocational training and facilities they desire are only available in towns. The fact that two-thirds of the students in category A of the second series of courses need 30 minutes or more to work confirms this. The same group only amounts to 25 % of the total number of employees. This leads to the conclusion that the Telekolleg participants in this group have a greater desire for education and advancement than the remaining student body. In that case students using shuttle services would certainly deserve special consideration as regards the broadcasting times on both channels. Some of these broadcasting hours would have to be scheduled at a later time in order to cater for their needs. However, it should also be considered that, in view of the tiring daily journey of this group of participants - but also in principle, concentrating the lessons and providing for breaks might be more economical and stimulate motivation more than a uniform sequence of lessons. But it must not be forgotten that the above thoughts are merely assumptions, and that further surveys must be conducted before any kind of definite decision can be made.

Hypothesis 7: Women are affected to a greater extent by the regional and social shortcomings of the educational system than men. In the social classes appealed to by Telekolleg the opinion that a sound vocational training is not as important for women as it is for men is still quite usual. In higher and better-educated classes, however, vocational training for women has more or less reached a degree of equality with that for men. Thus, the percentage of female Telekolleg students is expected to be relatively high.
The ratio between male and female participants is about the same in both the first series and in category A of the second series, namely 4 : 1. (See Chart 1). Obviously, many women do not consider the possibility of attaining further education provided by Telekolleg to be good enough to justify their

efforts and loss of spare time. Thus, Hypothesis 7 is not correct. Telekolleg has not succeeded in activating the desire for further education in the female segments of the potential audience in the same way as in the male segments. There are several possible explanations for this. First, it has already been pointed out that Telekolleg is linked more closely to training in some certain vocations than in others. Accordingly, Telekolleg is not, or at least does not appear to be, orientated towards typical professions for women. Thus, there is only a relatively small number of female participants. Women belonging to certain social classes consider their vocational career to be merely a transition period between school years and marriage. It is regarded as important to start earning and to save money as soon as possible, and not to partake in studies, which then seem useless for married life and family life. More efforts on the part of the responsible authorities are required, than merely providing a number of courses, in order to do away with this traditional opinion and viewpoint and to support the idea of further education for women. This, however, can only be carried out by means of the carefully planned co-operation of social and pedagogical institutions.

It should be mentioned that the percentage of female students in Telekolleg corresponds to that in other facilities of the "Zweiter Bildungsweg"(7). In the first series of courses 21.15 % of the student body were women, in the second series 20.91 %. Similarly, 21.98 % of the pupils at the Bavarian "Berufsaufbauschulen" are female. 19.91 % of the pupils at the "Abendgymnasium"(8), 17.43 % at the "Abendrealschulen", and 23.85 % at the "Bayernkolleg"(9). There is, however, a small, but nevertheless significant relationship which has appeared between age and sex. Whereas in the case of the first series of courses there was no connection between these two factors, it became evident in the second series that the younger students are mostly female ($r = 0.09$).

A difference in vocational motivations can be noted between male and female participants. It has been determined that male students participate in Telekolleg for vocational reasons (first series of courses: $r = 0.28$; second series, category A: $r = 0.20$).

Hypotheses 8 and 9: The "Telekolleg Days" are attended to a large extend by students with a relatively low standard of education, and probably also by a large number of the younger participants, who still accept classroom teaching methods.

On the other hand it must not be overlooked that the "Telekolleg Days" can be attended more easily by students living in towns. Thus, it could be expected that the attendance rates would be higher in large communities. Chart 1 shows that far more than half of the students in the first series, and almost all of the students in the second series, expressed their intention to attend the "Telekolleg Days" regularly. The highest of all relationships between two factors in the first series was constituted by the correlation between "Telekolleg Days" attendance and the vocational motivation of the students ($r = 0.41$).

However, this correlation dropped to $r = 0.09$ in the case of category A of the second series. Thus, it was relatively likely that students with vocational motivations would attend the "Teleskolleg Days" when the courses were first launched. This is explained by the fact that the Bavarian State Ministry for Education has made regular attendance of the "Teleskolleg Days" compulsory, if a student wants to take the final examination. In this connection the reasons given before for the high drop-out rate at these group meetings should be repeated: The segment of the overall student body participating in these meetings is not representative of the educational effect of Teleskolleg, as this segment only includes those students wanting to take the final examination. The "Teleskolleg Days" are not an adequate rating criteria for the other groups within the student body. This can be seen very clearly by the numbers of participants in categories A, B, and C (page), as only the students in category A intend to take the final exam. 67 % of the students who attended the first "Teleskolleg Day" in the first series of courses also attended the fifth of these meetings, and 42 % participated in the last one. The last figure registered in the case of the second series, which relates to the fifth "Teleskolleg Day", was 74 % of the participants in the first of these meetings. Therefore it is evident that the drop-out rate has decreased considerably in comparison with the first series. The correlation between the students' age and their attendance at the "Teleskolleg Days" is striking in the first series, whereas it is not so prominent in the second series. In general, young people attend the "Teleskolleg Days" regularly (first series: $r = 0.22$; second series, category A: $r = 0.05$), while this does not apply to students of 22 years or more.

Hypothesis 10: Professional and vocational motivation is the most frequent for participation. It is assumed that approximately 50 % of the participants aim at professional advancement, improvement and economic advantages.

The decision to broadcast the curriculum of the "Berufsaufbauschule" in Teleskolleg shows that the responsible authorities assumed that the students would be primarily interested in vocational advancement and training, and the economical benefits related hereto. There is a very definite connection between vocational motivation and sex: Male participants are more frequently motivated by vocational aims than women. (First series: $r = 0.28$; second series, category A: $r = 0.20$). We have already pointed out the general connection between vocational motivation and regular attendance of the "Teleskolleg Days" (first series of courses: $r = 0.41$; second series, category A: $r = 0.09$). The individual correlation rates as regards the connection between vocational motivation and regular attendance are as follows: a) urban population: first series: $r = 0.40$; second series, category A: $r = 0.12$; b) students with a low standard of school education: first series: $r = 0.38$; second series, category A: $r = 0.09$; and c) male students: first series: $r = 0.39$; second series, category A: $r = 0.08$.

These figures show once again that Telekolleg is orientated to vocational interests and aims. In fact, the whole system favours such orientation. Furthermore, it has already been pointed out that Telekolleg provides a specific background for training in certain vocations. It is obvious that such a curriculum cannot activate all the talent resources among the population, or even a very high percentage. Any expectations or hopes that Telekolleg can serve as the universal solution to all educational problems below "Gymnasium"(8) level and outside of the "Realschulen"(9), are completely unrealistic. Telekolleg clearly shows that apart from the necessity of its own system being improved, it is also necessary to make further efforts to establish parallel institutions employing both modern media and traditional methods. The concept of a modern, educated society can be realised neither by conventional means nor by the support of a small number of new educational facilities, no matter how original these may be, if these means or facilities do not function within a combined system.

THE RESULTS OF THE SURVEYS IN VIEW OF THEIR EDUCATIONAL AND POLITICAL IMPORTANCE

(1.) Participation in Teleskolleg

The number of enrolments (approx. 14,000), and the number of students still participating after the first half of the courses had been completed (7,448), can only serve to provide temporary conclusions. The number of enrolments and drop-outs can under no conditions be interpreted as if they came from a "normal" type of school. At a normal school the large number of enrolments would already be surprising as such, as it far exceeds the number of pupils attending the comparable conventional schools in Bavaria. At present, there are 82 "Berufsaufbauschulen"(5) in Bavaria, with a total of 10,343 pupils (8,226 male, 2,117 female). Each school year is represented by an average of 3,514 pupils. This figure of 3,514 "Berufsaufbauschule" pupils is faced by 14,000 Teleskolleg enrolments. The thought that four times as many students as the number of pupils currently attending all the Bavarian secondary schools, could register for a new institution leading to the "Abitur"(6), is a complete phenomenon, as it would mean that only every fifth person receives an opportunity within the framework of the present educational system, to strive towards a standard of education corresponding to his ambitions and self-appraised talent. In fact, only 2.1 % of the people having passed the "Abitur" graduated through the "Zweiter Bildungsweg"(7), i.e. through the so-called "Abendgymnasium"(8) or through the "Kolleg"(9). This figure is extremely low if compared with the 93.5 % of all pupils having passed the "Abitur" at a regular secondary school.

The following reasons do not allow too extensive a conclusion to be drawn from the number of enrolments at the Teleskolleg: The fact that it substitutes the "Berufsaufbauschule"(5), which is a relatively young type of school not yet holding a firm basis in the eyes of the public, precludes comparing it with traditional schools. In order to appraise the situation of Teleskolleg properly, it is also important to note that the "Berufsaufbauschulen" are relatively few and far between. 82 "Berufsaufbauschulen" are not much compared with some 7,103 communities in Bavaria, of which 48 have their own administrative districts and 7,055 belong to larger districts.

The following data compiled in the course of the surveys indicate that a high percentage of the students participating in Teleskolleg comes from regions where it is almost or completely impossible to attend a "Berufsaufbauschule":

> A quarter of all the students come from communities with less than 3,000 inhabitants. Only about every fifth student views the programmes together with another student, and only about every tenth student meets another student to do work on the programmes together.

These figures show that participants in the Telekolleg primarily work alone and live isolated in regions which only have a few schools and relatively poor transport facilities.

When interpreting the above figures cautiously, it can be said that a considerable proportion of the students living in sparsely-populated areas could also be reached by traditional means, that is by constructing schools in their neighbourhood. These students are potential pupils of the "Berufsaufbauschule"(5); they are young restless people striving towards advancement. They do not constitute an audience which could only be approached by TV educational programmes. It is merely the fact that the system of "Berufsaufbauschulen" cannot be concentrated as desired, in other words that a school organisation cannot reach individual potential pupils in residential areas with low population density, that induces the prospective student to turn to the television courses. The percentage of students willing to attend another, similar school if possible, as compared with the number of students only prepared to study in TV courses, must be determined reliably in a systematic examination of motivations which has not yet been carried out.

The fact, however, that more than half of the Telekolleg students live in towns, i.e. in the centres of the catchment areas of the present "Berufsaufbauschulen", is of even greater interest. The reason for this is a special one, which demands a separate explanation: The students in question are by no means "pupils on the waiting list" for the establishment of new schools, as can be assumed in the rural areas. Probably, the reason behind their interest and enrolment is the fact that the Telekolleg consists primarily of television courses, and that such courses give rise to much stronger a motivation than would be stimulated by the mere existence of "ordinary" types of schools. The fact that in the centres of the catchment areas of present "Berufsaufbauschulen"(5), the number of potential students, interested in the Telekolleg far exceeds the number of pupils at the said "Berufsaufbauschulen", may be connected with the fact that television is not only a carrier of educational facilities, but also a popular advertising media. Nevertheless, the high degree of self-advertisement and promotion characteristic of television must not be regarded as an absolute quantity. In future projects this characteristic may well be less prominent than in the case of the Telekolleg. It must not be forgotten that in the case of Telekolleg the advertisement campaign was not intended to promote a traditional type of school, but was a kind of invitation to participate in an experiment, the outcome of which was not based on previous experience. Apart from the consideration that the motivation effect was a unique case of its own when Telekolleg was launched, the advertising and canvassing potential of television when applied to students living near comparable traditional schools must be appraised differently from this potential when applied to the large number of prospective "Berufsaufbauschule" pupils, living isolated outside of the catchment areas of existing schools. In the case of students living outside of the said catchment areas it may be assumed that the establishment of a "Berufsaufbauschule" would have had the same effect as the courses provided by Telekolleg, whereas on the other hand the students living inside the catchment areas would apparently not have attended a "Berufsaufbauschule", as they were motivated solely by the special conditions offered by television teaching, that is the possibility to participate in courses not linked with attending a school regularly.

(2.) The Position of Telekolleg within the Overall Educational System

As regards the part played by Telekolleg within the overall educational system, one must first examine the striking difference between students only having an elementary school background or having attended a vocational training school, as compared with the students who, in the past, have attended a secondary school of some kind - for either a long or a short period of time. Former pupils of secondary schools participate in the Telekolleg in order to complete their unfinished education by means of this new method. The same impulse for further education and advancement, which at some time in the past induced these students or their families to choose a path leading to higher education, now comes into effect again in the case of Telekolleg. In this way their decision in favour of further education, which once failed due to certain difficulties, can prove successful after all. In the case of this group of students there are no factors underlying their participation which could not have been present in earlier times. This function of enabling students to catch up with their education and to correct mistakes made previously, is common both of Telekolleg and of the "Berufsaufbauschule"(9). The average number of pupils attending the "Berufsaufbauschule", who once attended a secondary school of some kind, is 18.2 % for the whole of Bavaria.

It is interesting to note that the Telekolleg students do not differ from the pupils of the "Berufsaufbauschule" in respect of their previous education, i.e. the function of Telekolleg as an organ of educational extension. 76.2 % of the Telekolleg students attended elementary school last, and so did 75.4 % of the pupils of the "Berufsaufbauschule". Even if every fifth Telekolleg student uses this new institution as a means of making up for his failure during his first attempt to reach higher education, as is also the case with the "Berufsaufbauschule", its main task still is to serve as an extension of education leading on from elementary school. The high percentage of former pupils of elementary schools or of vocational schools within the overall structure of the Telekolleg student body points at two important facts. First, it indicates a backlog in socio-educational respect, which has been formed within the overall framework of the educational system by the fact that the re-formation of the elementary school has not kept up with modern society's realization of the growing importance of education. As yet, there has been no reform of the Bavarian elementary school system which has affected the field of operation of the Telekolleg, as the establishment of the so-called "Hauptschule"(10) does improve the social possibilities offered by elementary education, but is

limited to various other German Länder. In fact, the constitutional pre-requisites for such a reform were only established very recently. The very large number of Telekolleg students, who decided to participate in the courses in spite of the fact that the German elementary school they had attended did not present itself to them as the bottom level of an extending educational system, but who did nevertheless exploit this unique and unusual possibility of educational advancement and of "escaping" from the confined elementary school system to participate in higher levels of the educational system, shows that it is high time to alter the conditions underlying the quantitatively most comprehensive part of our educational system. This change must provide the present desire for further education to be found among the public, with the appropriate educational opportunities and equal possibilities for all segments of the population. However, the results of the survey indicate that potential improvements of the educational possibilities have, as yet, not been realised. This becomes especially evident when one considers that employees in agricultural and forestry professions are under-represented in the Telekolleg, as compared with the overall population. In this respect it is not sufficient to compare these professions with the conditions underlying the total population. One must bear in mind that the question, whether a segment of the population is provided with the appropriate educational possibilities or not, is by no means to be measured by this segment's percentage in the entire population or by its subjective desire for further education, but only by its objective necessity for education. Even if the percentage of people employed in agriculture and forestry and participating in Telekolleg were equal to the actual percentage of these groups in the population, agriculture and forestry could still be termed under-represented, as the necessity for the employees working in these professions to catch up with the general standard of elementary and further education is much greater than in the case of all other groups of the population.
Statistics pertaining to the percentage representation of the various professions among the population are not sufficient for providing an appropriate method of determining the effect of educational and political measures; this must be the task of a special "catalogue" of the necessities and requirements of the many professional groups. When compared with this catalogue, the distribution of the various professional groups participating in Telekolleg, shows that the first courses presented lacked the possibility of adapting themselves to the existing socio-educational conditions.

The second of the two important facts mentioned before indicates that the Telekolleg and other similar forms of an alternative organised educational system to be established in future, constitute a highly effective possibility of creating complete equality in education and better chances for all segments of the population. Moreover, such institutions could provide effective results prior to the realisation of other possible educational projects - the construction of new schools, the development of new kinds of schools, the re-structurisation of the educational system in the form of a global school reform, etc. The outstanding characteristic of a television school is its possibilities as regards the time required for setting up courses. The exceptionally short lapse of time of an educational institution like Telekolleg, between the conception of a measure and the effects hereof within the overall system, is obviously a criterion which must be made evident to the administrative and educational authorities, as there is no institution with a comparable ability within the traditional system. If a future-orientated educational policy aims at establishing a balance between the three sections of the German educational system (elementary school, 'Realschule, Gymnasium'), by enlarging the scope of the 'Hauptschule'(70) and by creating paths of further education continuing from where the 'Hauptschule' leaves off, this policy can be realized without difficulties only by finding ways of reducing the period required for this function, especially as regards the long and complicated task of training teachers. As long as the educational system remains a central topic of discussion both in society and in cultural and socio-political respect, the success of progressive projects depends on the rapid realization of the decisions made in the course of educational and political discussions and experiments, so that the population notices a visible connection between a decision and its realization. Only the mass media have such a time-saving effect. In this way these media can serve to replace the other educational facilities, i.e. they can be employed wherever the function of the traditional institutions requires a longer period of time to take up its work, especially as regards the training of teachers.

(9.) *Summary of Statements*

The following important educational and political statements, derived from the present material, can be made in connection with Telekolleg:

(1.) The possibilities of the existing educational facilities can be enlarged considerably by a television service, which does not merely develop additional courses and forms of education apart from the public system, but also takes the decisive step to assume a certain function within the organisation of this system.

(2.) This enlargement of the scope of the educational facilities cannot be carried out by establishing an unusual type of school or by specially selecting the contents of the courses to be provided, but is primarily based on the function of television as a mass media. The fact that television serves as the carrier of this novel method of education is the pre-requisite for a high degree of socio-educational effectiveness, which cannot be reached by any traditional method. If television as a media and its special possibilities of propagating information were not available for this promotion of education, certain segments of the population could not be approached, certain educational possibilities could not be provided under unfavourable social and geographical conditions, and certain educational effects could not be achieved.

(3.) The decisive educational advantage of Telekolleg or of future possibilities of exploiting TV facilities within the organized public education system in a way similar to the Telekolleg method, is the short realization period linked herewith. The political decision to launch such an educational institution, the realization of this institution, and its effect within the overall system take place in a closer sequence than in the case of any other educational institution. Thus, the usage of television can be recommended wherever critical conditions and bottlenecks within the education system must be overcome, which could not be eliminated by other means, as these would require a very much longer period of time until achieving an effective degree of success. In fulfilling this task, the television system is not tied to one single function for all time, but can cope with a relatively rapid change of tasks. In this way, the relatively young and modern media of television is able to continually undertake pioneer work on new projects, as it is relieved of the responsibility for each task immediately when the traditional educational institutions with a long realization period, e.g. for training of teachers, come into effect. As the television system is thus not linked to one single task for an indefinite period of time, it is able to prove its dynamic and progressive character in continual application to new projects.

(4.) First experience made indicates that a full insight into the instrumental character of Telekolleg, i.e. into the connection between the possibilities of television-carried instruction and certain desired effects within the public and the educational system, cannot be reached until the first model is extended by variations of those aspects of Telekolleg, which do not constitute unchangeable factors. Further surveys and examinations must pave the way for an extensive educational and political strategy employing the Telekolleg model as a flexibly-usable facility.

Appendix of Terms

(1) "Zweiter Bildungsweg": This is a system of institutions and facilities other than the regular secondary schools leading both to the "Mittlere Reife" (see 3) and to the "Abitur" (see 2). It is intended for adults and young people in employment, and consists therefore largely of evening courses.

(2) "Abitur": This is the leaving certificate of German "Gymnasien" (see 8) (9 years of secondary education). It qualifies pupils for studying at universities and similar institutions. The equivalent standard of education is the GCE "A-Level" in Britain, and the "Junior College Leaving Certificate" in the USA.

(3) "Mittlere Reife": This is the leaving certificate of German "Realschulen" (see 4) (4 - 6 years of secondary education). It does not qualify for university studies. The approximate equivalent is the "GCE O-Level" in Britain, and the "High School Diploma" in the USA.

(4) "Realschule": This is a secondary school leading to the "Mittlere Reife" (see 3). It lasts for 4 years in Bavaria, and for 6 years in the other German Länder. The leaving age is approximately 16.

(5) "Berufsaufbauschule": This school is intended for young people in employment having only an elementary school background. In two years of evening classes and one year of day school it leads to the "Mittlere Reife" (see 3).

(6) "Fachschulreife": This is the equivalent of the "Mittlere Reife" (see 3) for students of the "Berufsaufbauschule" (see 5).

(7) The normal German system of grades, which is also used for Telekolleg, ranges from 1 - 6.

1 = very good
2 = good
3 = satisfactory
4 = fair
5 = poor
6 = insufficient

1 - 4 are "pass" grades, 5 and 6 are "fail" grades. (Institutions of advanced education, such as universities, etc., normally use a somewhat different system).

(8) "Abendgymnasium": This is an educational institution consisting of evening classes, providing people in employment with the regular "Gymnasium" curriculum. Thus, it finishes with the "Abitur" (see 2).

(9) "Kolleg": These are institutions within the framework of the "Zweiter Bildungsweg" (see 1), which lead to the "Abitur" (see 2). Unlike the "Abendgymnasium" (see 8), the "Kolleg" can also consist of full-time courses.

(10) "Hauptschule": This is an enlargement of the upper level of the German "Volksschule" (elementary school), which consists of grades 5 - 9.

(11) "Abendrealschulen": This is an evening school leading people in employment to the "Mittlere Reife" (see 3). Cf. "Abendgymnasium" (see 8).

TELE - CNAM

Conservatoire National des Arts et Métiers[1]

Since 1963, the "Conservatoire National des Arts et Métiers" (C.N.A.M.) has conducted a series of experiments concerning the usage of television for teaching at university level. At first, these experiments were carried out within the framework of a long-established educational institution, in order to meet fundamental needs in this field[2]. However, they have quickly become a matter of national importance.

One of the many tasks of C.N.A.M. is to provide people in employment with lessons and courses at a high level, in so doing enabling the participants to refresh and complete their knowledge and education , and to prepare themselves for taking technical certificate and diploma exams at university level. In this way, the participants in C.N.A.M. can improve their vocational standing. These students - there are some 15,000 of them in Paris - are mostly employed in industrial firms situated in the suburbs of Paris.

---

[1] This report has been compiled by M. Marcel Leone, deputy principal of the "Conservatoire National des Arts et Métiers", for the 1969 Spring edition of the periodical "Fernsehen und Bildung". The passages printed with a double space between the lines contain additional information on TELE-C.N.A.M., which was derived from an interview.

[2] C.N.A.M. was founded in 1794, during the French Revolution, by virtue of a decree of the Convention. It received its name from the Parisian machine depot - which later became the Museum for Technology - where modern tools and machines were demonstrated to craftsmen interested in prior art. C.N.A.M., which conveys knowledge at university level in the fields of science technology, economics, law, and social science, has the function of a specialised university. It is the only institution of its kind in France.
Candidates wishing to take the C.N.A.M. exam (Diplome d'Etudes Supérieures de Technologie) must have passed the Baccalauréat Mathématiques Elémentaires, which corresponds roughly to the GCE "A-Level" or the Junior College Leaving Certificate in the mathematical and scientific subjects. An exam certifying an equivalent standard also qualifies for taking the diploma named above. The diploma exam can be taken on several days during the year at the C.N.A.M. headquarters in Paris, and at certain branch institutions in provincial areas.

Normally, the students can only participate in the courses and in the group exercise sessions in the evenings after having finished work, and on weekends. Many of them waste precious time when travelling to the C.N.A.M. premises situated in the middle of Paris. In order to eliminate this negative factor, C.N.A.M. has decided to resort to the services of television.

I. A DESCRIPTION OF THE EXPERIMENTS[1]

(a) Broadcasting of the Courses Through the Television Link Transmission System

In 1963 a special TV network functioning on the link transmission system was set up, in order to broadcast a number of especially popular elementary courses in science, in this way reaching to a new, larger student body. The courses are transmitted directly from the C.N.A.M. lecture rooms to 12 viewing centres in and around Paris. These viewing centres have a total of 18 rooms, where participants can watch the programmes. The professor of C.N.A.M. gives his lecture under completely normal conditions. This lecture is transmitted by means of three Orthicon TV cameras which are placed at the same height as the professor's desk and as the blackboard. The message (sound and picture) televised in this way is directed by a transmitter to a parabolic TV broadcasting unit mounted on the roof. This broadcasting unit passes it directly on to the Meudon television tower, which is under the administration of the French Post Office. The TV tower, in turn serves as a relay station, using two emitters (cornets) to cover the entire area of Paris. The signals for pictures and sound are received by U.H.F. or video TV sets installed at the viewing centres; the sets are fitted with video-intake filters (entrée vidéo).

The courses begin at 6.15 p.m. and last one hour each. Approximately 40 lessons are broadcast annually in each subject. In 1968 television courses were run in the following subject: General preparatory courses in mathematics, physics, the fundamentals of data processing (informatics); amounting to a total of 15 lessons a week.

---

[1] The financing of Télé-C.N.A.M. is contributed to by "Fonds National de la Promotion Sociale de la Formation Professionnelle" with an annual grant, and by ORTF, which provides its technical assistance free of charge. In addition, C.N.A.M. receives funds from the general tax on apprentices, levied from industrial enterprises.

The modus of reception of the courses is organised. The adults participating get together at the 12 viewing centres already mentioned. When registering, the students are allocated to the various viewing centres according to their place of employment and residence. The number of students at the individual centres varies according to the size of the centre and the nature of the course; it ranges from 20 to 120. Owing to the great demand, some centres have installed two to three rooms for viewing the programmes. The total number of registrations for the overall framework of courses is 4,500, but the actual number of students participating is 3,000, as many students register for several courses. Each viewing centre is supervised by a principal, who is normally also the head master of the school where the centre has been installed. Some centres have been opened on the premises of private firms, but can of course also be attended by people not employed by the respective firm.

A tutor exercises the pedagogical supervision of the work done by the students. In general, the tutor is an engineer or a teacher competent for the subject in question. Actually, he has a double function. Should a breakdown occur during the television broadcast of a lesson, he must be able to continue the lecture for the group of students he is allocated to. Nevertheless, his main function is to assist and help the students in their work. After each programme he gives an exercise lesson or answers questions relating to parts of the lecture not understood by the students. Moreover, the tutor maintains a continual connection with the respective C.N.A.M. professor and sees to it that the written work done by the students is sent in for correction.

Finally, the learning process is supported whenever necessary by practical exercises at industrial firms, under the supervision of the tutor.

This tutor system is extremely popular among the participants. It provides them with possibilities of studying which are often much better than in the lecture rooms themselves. The accompanying material placed at the students' disposal (books or copies of the texts of lectures) enables them to do without constantly taking down notes, except when experiments are demonstrated or when terms not mentioned in the texts are introduced. Thanks to the help provided by the tutor and the teaching material placed at their disposal, the participants attending the viewing centres are able to exploit the lessons to the greatest possible extent. Thus, they usually achieve better results in the exams than the students who participated directly in the lecture rooms. It has also become evident that the proportion of students attending the courses regularly is greater at the viewing centres.

(b) The Omni-Directional Broadcasting System of the Course Programmes on Channel Two of the Office de Radiodiffusion et de Télévision Française (ORTF)

The success of the courses broadcast on television, and the fact that it is impossible to extend the area covered by the television link system to those parts of the country which do not yet have institutions for technical training and education at university level, have led to the transmission of the courses, in cooperation with ORTF, on Channel Two of French TV.

At first, two courses were broadcast in the initial phase of the experiment in November 1966. The stations broadcasting these courses were Paris-Ile de France and Lille-Bouvigny in the region of Greater Paris, Picardie and Northern France; the subjects were general mathematics and radio engineering. The procedure employed remained the same as in the previous courses; the only difference was that the viewers could now watch the programmes alone apart from watching them in groups at the viewing centres. Thus, the students can watch the programmes at home and have the accompanying material sent to their address; they can send in their written work and register for the diploma exam held at the end of the year. The modus of participation is organized for those students who meet at the viewing centres, or who participate in group work after having viewed the programme at home. The work groups and the viewing groups ("Groupes Télé-C.N.A.M.") are supervised and assisted by tutors. They meet in schools, on company premises or in public buildings (e.g. auditoriums) and work under similar conditions as the viewing centres situated in the suburbs of Paris for receiving the programmes through the television link system. The students viewing the programmes at home are requested to participate in the Télé-C.N.A.M. group work if possible.

Parallel to this regional transmission of the courses, a second phase was launched in 1967/68, which consisted of a number of courses broadcast throughout France, namely "General Mathematics", "Electronics", "Sectional Fields of Mathematics", and "The Fundamentals of Data Processing" (Informatics); totalling 7 hours of broadcasts weekly. C.N.A.M. placed the facilities in provincial areas, with which the organization is associated[1], at the disposal of this series of courses, and also promoted the establishment of Télé-C.N.A.M. groups, without however organizing them directly.

---

[1] Several years ago, C.N.A.M. initiated the establishment of 60 centres in provincial areas, which are linked to the overall C.N.A.M. organization. These centres run courses aiming at the same diplomas as can be taken after having attended the central institute in Paris. A total of 18,760 students participate in the courses run in Paris, whereas 20,319 students attend the provincial centres.

It has been agreed to cooperate with various educational institutions in order to boost the pedagogical support of the students viewing the courses at home. Thus, the course in "Sectional Fields of Mathematics" has been organised in conjunction with the "Centre National de Télé-Enseignement" (National Centre for Correspondence Teaching), which sees to the correction of the students' written work. Similarly, the experimental part of the course "The Fundamentals of Radio Engineering" was supplemented by programmes which ORTF had produced for its technical staff, and the entire course was re-broadcast at a different time of day for this personnel.

(c) The Student Body

An initial survey of the motivation and the social composition of the student body participating in the courses broadcast on Channel Two, led to the following results: The students are engineers holding a university diploma. They participate primarily to gain information in a certain field of learning or to refresh their knowledge. Secondly, the student body is made up of people working as technicians, who hope to achieve long-term vocational improvement and a better income by participating in the C.N.A.M. course programme and by successfully taking the final examination. A third category, which amounts to approximately 10 % of the total student body, consists of military personnel and of students of regular scientific faculties. The percentage of regular students participating in the C.N.A.M. programmes is especially high in those courses which are not taught at the scientific faculties. The following other factors characterise the main group among the student body, i.e. the people working as technicians: 90 % of the participants are 26 or 27 years old, they have the French secondary school leaving certificate in the mathematical and scientific subjects (equivalent approximately to the GCE "A-Level" in Britain, and the Junior College Leaving Certificate in the US), their monthly income usually ranges between 1,200 and 1,500 francs, and most of them live in and around Paris or in relatively small towns with 10,000 to 50,000 inhabitants. Posters on advertisement pillars and in industrial firms canvass potential students. In addition, the course programme of C.N.A.M. is published in all technical and economic journals.

(d) The Practical Significance of these Experiments

By virtue of its courses, C.N.A.M. has achieved a de-centralisation of further education facilities at university level. This de-centralisation has been extended to cover Paris and the surrounding area, and it is now possible to reach a large number of students through the viewing centres, who would otherwise have been deprived of continuing their studies. In this connection it should be noted that this method of studying provides better conditions for the students than the traditional lecture room method.

The programmes broadcast by Channel Two of ORTF do not only make it possible to reach a larger audience, but also serve to increase the interest and motivation of large segments of the population. The courses offer people such as teachers, engineers, doctors, and technicians the chance to update their knowledge to the latest standard, to study new fields of learning, and to prepare themselves for examinations. An extremely high number of letters received from the most various vocational groups proves the general interest of the public in the TELE-C.N.A.M. enterprise. It is the first time in France that further education courses for people in employment reach this audience at home. This demonstrates that the access to an advanced professional position, the updating of a person's knowledge to the latest standard, and the acquisition of academic degrees are by no means impossible to achieve. The possibilities laid out here cannot yet be appraised within their full scope.

II. THE PEDAGOGICAL ASPECTS OF THESE EXPERIMENTS

The work done by C.N.A.M. on the experiments described was initially regarded with a certain amount of scepticism. In the meantime, however, it has been proven that television is capable of playing an important role both in vocational advancement at university level and in permanent education. It would nevertheless be an underestimation of the importance of these experiments if they were to be judged exclusively by their contribution to the continual expansion of the effective scope of an institution of adult education. It is just as urgent to examine the question as to the degree of exploitation of the pedagogical means provided by so powerful and significant a medium as television. The part played by television can only be appraised correctly if one considers both the pedagogical situation, within the framework of which it is intended to function, and the aims of the educational campaign in question.

(a) The Possibilities and Limits of Live Transmissions

As far as the television viewing centres in and around Paris are concerned, they were intended to relieve the Paris lecture rooms of C.N.A.M. of the stress of too large a number of students, and to provide students in employment with a possibility of participating which does not entail long and unnecessary journeys. The task of these centres was to provide as large a number of participants as possible with a facility for technical studies. It must be noted that there are only relatively few professors competent in this field, who hold high scientific qualifications and are simultaneously accustomed to adapting themselves to a heterogenic audience, which has already gained concrete knowledge of the subject taught in professional life. Furthermore, the courses constituted a kind of facility of vocational advancement available to everybody at any time, which led to the fact that the pedagogic and scientific personality of a professor induced a substantial concentration of students at the same time and at the same place. Thus, the idea of broadcasting the lessons live from the lecture room emerged. This system is not subject to the principles of the television media, but adapts itself to the teaching rhythm of the respective professor. Live transmission is also necessitated by the presence of students in the lecture room and by other factors preventing full exploitation of the possibilities offered by television. Nevertheless, this system does allow a certain kind of pedagogical progress. For instance, cameras with varying focuses make it possible to switch from an overall shot of the blackboard to close-ups of details, which the professor wishes to point out in particular. A detail presented in this way penetrates the viewer's consciousness to the same extent as it takes up the entire TV screen. By virtue of this system, an oscillographical picture of the particulars of an experiment becomes visible to all the viewers, although these particulars might not be evident to some students in the lecture room. By using ancillary lenses enlarging the picture, for example, it is possible to watch the vibration of a laser. Coupling the camera with a microscope enables the students to see the structure of an Orthicon lattice or shows the Brownian motion in an enlargement of 12,000 - 15,000 times its actual size. Experience has shown that a lecturer being televised tries harder to make his lesson interesting and lively, that he expresses himself more clearly, often exploits the blackboard in a better way, and thus improves his teaching methods. However, the most important aspect is that the de-concentration and de-centralization led to the formation of work groups, within the framework of which the relationship between students and teacher was restored with the help of the tutor, which cannot be achieved in a lecture room. Furthermore, the system promotes the students' preparedness to work together.

The reason for broadcasting the programmes on Channel Two of ORTF was not so much to merely enlarge the area covered by the C.N.A.M. courses, but was the desire to render a service to the public. This service is intended:

- to create a common motivation for higher technical studies and to give the public a dynamic approach to education.

- not only to meet the demand for courses of higher education in areas which do not yet have appropriate institutions, but to arouse and stimulate such a demand.

- to provide the participants with (a) the fundamental knowledge required for studies at a higher level, (b) training, leading the participants on to an important specialized subject, and (c) with the basic facts and scientific information on a new and relatively unknown field of knowledge.

- to offer participants desiring their newly-acquired knowledge to be certified, with the possibility of taking an exam, which is acknowledged by an organization of adult education or by the place of employment of the respective participant.

Although the courses broadcast on Channel Two of ORTF are still transmitted live from the lecture room, considerable innovations have nevertheless been introduced, according to the subject matter of the material taught and the personality of the professor: The programmes include more experiments, film strips and slide series. Letters received from the viewers and the contacts maintained with the TELE-C.N.A.M. groups have also led to alterations and improvements, the importance of which continually becomes more evident as the experiment progresses. Furthermore, it has in the meantime been decided to test the public interest in the subject matter and method of presentation of a new course by means of a series of experiments, before the course itself is launched.

(b) Possibilities of a Greater Use of the Television Resources

The lectures on the fundamentals of data processing (informatics), which were held from January to May 1968, can be taken as an example of increasing the effectiveness of television. The pedagogical aim of these lectures was to provide students with the necessary basic knowledge of this subject, which they required either for specialising in this field or for gaining a general idea thereof, as they know that the importance of data processing is continually increasing. Moreover, it was intended to give the data processing specialists the opportunity of establishing a closer connection between theory and practical work.
However, this attempt to meet very different needs was not the main aim of the said lectures. They were intended, above all, to determine the group of participants appealed to by thorough and systematic courses in data processing, i.e. the target audience, for which the actual course would have to be designed. Nevertheless, this does not mean that no consideration whatsoever is given to possible marginal effects, which the course might have among other interested groups of the public. These programmes made it possible to exploit the facilities offered by television to a greater extent, for example by producing film sequences, which could still be used even if the design of the course were altered, and by photographs, diagrams and models. In addition, tutors were engaged to discuss the means required for developing high-level technical courses on TV, which are to arouse the interest and active participation of the audience. Three accompanying booklets were published parallel to the programmes, and were sold to the participants on request[1]. Finally, the formation of groups of students viewing the programmes together was stimulated by virtue of the experience made. These groups were, in turn, supervised by tutors who were in charge of exercise lessons and repeated and revised the material taught.

---

[1] The fact that a certain sum had to be paid for the material is of great importance when forecasting the framework of the potential audience: As became obvious, the number of copies sold is smaller than when copies are given free of charge to individuals or to the viewing centres.

It proved possible to draw up an exact assessment of this experiment, by evaluating the data received by the secretariat in various ways, e.g.: from meetings with the tutors or principals of the viewing groups in Paris, from discussions with participants, and from the answers given on a questionnaire mailed to all recipients of the accompanying material. In this report, we would only like to give the most important figures gained in this way:
According to a realistic estimation, approximately 10,000 students have participated in the courses. A total of 6,000 hectographed copies of the accompanying material were sold, of which 2,400 went to firms or associated organizations and to training centres. In turn, many of these organizations again reproduced copies of the material, in some cases 50 to 100 such copies. In addition, 270 people registered for forming a viewing group, and remained in contact with the professor in charge of the course either by mail or through informatory meetings held in Paris. The number of viewing groups working at present is approximately the same as this figure of 270 participants.

From the overall number of students having filled in the questionnaire[1] - amounting to 20 % of the total of 5,000 students questioned - 56 % watched the programmes at home, and 44 % belonged to viewing groups. Four out of five times, joint viewing of the lessons took place on the premises of firms; in so doing a tutor was engaged in two out of three cases. 70 % of the participants watched 10 of the total of 12 programmes in the series.

The registered participants come mainly from the following professions: Electronics, data processing and electrical engineering (28 %); chemistry (13 %); iron industry and mechanical engineering (15 %). In general, the students are technical employees in higher positions (29 %), other technical personnel or technicians with a diploma (18 %), and executives in administrative positions (10.5 %). Many of them (22 %) are employed in research departments, 12.5 % work in production or service departments, and 10.5 % of the students are employed as financial or economic staff.

The standard of education of the participants who filled in the questionnaire is relatively high: 29 % hold the "baccalaureat mathematique", and 56 % have an even higher level of education. However, the students' knowledge of data processing was relatively poor. 33 % only had a vague idea of the subject, and although 21 % did have a certain knowledge of it, this was only incomplete. Only 3 % had a thorough knowledge of data processing, and 21 % did not even know what informatics is. The answers show that a considerable percentage of those who filled in the questionnaire watched the programmes in order to complete their knowledge in the field of data processing (42 %), or wanted to acquire fundamental knowledge which might prove of advantage for a subsequent advanced course (39 %). Only 13 % stated that they participated merely to gain general information on the subject.

---

[1] This survey was carried out in collaboration with the "Centre Audio-Visuel" in Saint Cloud.

Furthermore, it should be noted that although 76 % of the participants watching the programmes on company premises were of the opinion that the course could serve as a basis for future education and training, only 22 % of the students participating alone were of the same opinion. Among the latter, 63 % were only interested in the course because it was able to supplement their existing knowledge of data processing. In the same way as in other courses, we have found out that the students participating alone have a broader basis of knowledge of a subject when entering the course, and are more independent in their choice, than the members of the viewing groups, who are accordingly more "pupil-like" in their behaviour.

The students' conceptions as to the practical usability of the knowledge acquired deviate. Of those students, who consider the programmes to be a basis for further education and training, 60 % think that they will be able to apply their knowledge in data processing in the near future. Of the group of participants considering the programmes to be a possibility of completing their knowledge of the subject, 40 % already use data processing in their work, 33 % are of the opinion that it will soon be introduced at their place of employment, and only 18 % do not think that this will be the case. In comparison, however, 61 % of the participants merely viewing the programmes for reasons of information believe that they will not need data processing in their work, 27 % think that they will need it in the near future, and only 11 % already use data processing professionally.

Other information and details received from the students, especially in relation to the standard, rhythm and style of lectures, to the introduction of discussion sessions with the tutors, the material taught, the basic terms, and to the terminology, etc., represent a valuable contribution in view of the development of future programmes.

Thanks to this preliminary work, C.N.A.M. has been running a course on the fundamentals of data processing since December 1968, which is broadcast on Channel Two of ORTF. This course takes the level of education and knowledge of the potential participants, and the critical objections and recommendations in respect to the expectations and aims into consideration. The programmes are not only directed at participants who are interested in the techniques of data processing due to vocational contacts with data processing centres, although they themselves are not experts in this field, but also at people who desire to undergo thorough training in data processing. Special consideration was given to the specific possibilities offered by television. As far as is enabled by the material and financial means available, reports, round-table discussions, films, photographs, trick films, models, and concrete examples, etc., were built in to the courses in a reinforced way. Accompanying material, containing the essentials of each programme and numerous diagrams, which are difficult to understand when shown on a small television screen, is mailed to the students prior to the broadcast. At request, the viewing centres can receive pedagogical instructions for the subsequent group work, explanations and supplementary charts, excerpts from periodicals or books and exercises with teacher's keys. In brief, this new course is a *further* step ahead towards an even better exploitation of the possibilities offered by television within the *framework* of a combined teaching system, which takes both experience made and the needs of the audience into consideration.

III. FURTHER DEVELOPMENTS AND EXPERIMENTS

As is made obvious by the example described above, C.N.A.M. endeavours to solve concrete problems and to reach concrete aims with the help of television. A solution is not used for general purposes until it has been checked as to its degree of success by means of experiments. Two further examples can serve to illustrate this procedure:

In 1967 the viewing centres in *Paris* started to re-broadcast a course in mathematics recorded on videotape at a different time of the day. This undertaking proved to be very successful. One reason for this was that the new broadcasting time was more convenient for a large number of participants. However, we also found out in the course of a closed-circuit re-broadcast, that many students prefer watching the programmes in the TV viewing rooms from participating directly in the lecture rooms. We have thus exploited this preference for our purposes. All courses broadcast via the television link system and by Channel Two of ORTF are now recorded on videotape. Certain elementary scientific courses, which meet with special interest, are re-broadcast on weekday evenings and on Saturday mornings. For example, in the case of mathematics, 16 various broadcasting times are available every week. In addition, two TELE-C.N.A.M. groups located in provincial areas, which have the requisite replay devices, have introduced the following system on a tentatively experimental basis: They use the videotape recordings of broadcasts which they cannot receive on Channel Two, for their courses, in this way having the same advantages as the viewing centres in and around *Paris* receiving the courses through the television link system.

Every week a large firm, an administrative body, or a centre of training and education, borrows videotape recordings from the headquarters of C.N.A.M. in *Paris*. In this way, the beginnings of a special modus of usage of television are starting to take shape, which will become very important. Videotape recordings and the possibilities they offer, meet the needs of all participants in employment, who, thanks to these recordings, can take part in the lessons wherever and whenever they like. C.N.A.M. is observing the development of this promising experiment with the utmost interest.

Another experimental project was launched in *January* 1969. This undertaking comprises some 20 lectures introducing a modern approach to mathematics. These lectures appeared suitable to arouse the interest of data processing specialists, teaching staff, sociologists, psychologists and philosophists all interested in the mathematical method of analysis, and of engineers and technical personnel. The programmes, which are intended as an experiment, are only broadcast in a part of France. In realising this programme in the television studios, doctors, sociologists and engineers were engaged, who are representative of the audience appealed to and who can participate actively at any time by demanding explanations and asking questions. In this way it is hoped to develop a method of television teaching which can be applied to the various educational programmes, as it takes all such factors which determine a new pedagogical situation into account (the aim of the courses, the structure of the audience, the subject, and the personality of the lecturer, etc.).

IV. CONCLUSION

As should be attempted by every pedagogue, C.N.A.M. has also tried as an institution to improve its methods in concrete everyday pedagogical practice, apart from the necessity of adapting internally its various duties and tasks. Thus, several phases of development can be seen from the work of the institution: closed-circuit TV - external transmission through a special network - public transmission via Channel Two of ORTF - and the application of videotape recordings. The same development is also to be found in the pedagogical usage of television: plain live broadcasts - live broadcasts supplemented by the employment of diagrams, slides, and experiments - transmission of a television course, part of which is broadcast direct, in which case the course is given in front of a regular audience and supplemented by the introduction of visual aids and discussion items, and partly by films (reports, panel discussions, concrete examples) - and lastly, the production of a course at a television studio, held with the active participation of a few representatives of the student body.

Meanwhile, the question arises whether the development of the usage of TV by C.N.A.M. could not be expedited, and whether one should not become more courageous in applying new processes. If C.N.A.M. were an institution for pedagogical research or an experimental centre, this question would doubtless have to be clearly answered in the affirmative. However, in the case of an institution with the importance and scope of the Centre National des Art et Métiers such a rapid development is opposed by difficulties of all kinds. An aspect of the experiments described here, which is by no means insignificant, is the fact that they were able to achieve a decisive step forward in the usage of television, despite certain difficulties.

TELE PROMOTION RURALE OUEST

I. General Facts

In the course of the past few years, France, just like the other European countries, was faced with the problem of adapting its economical status, both on a national and on an international level. The new conditions, which have resulted from the domestic social-economical developments, and above all from the nation's membership in so important a supra-national organization as the European Economic Community, have necessitated comprehensive perusal of all the existing economical structures and of the alterations, which these structures require to remain viable at present and in future.

This process of re-structurization affected almost all the branches of the economy. They have to be adapted to the new conditions, which were induced on the one hand by the expansion of the market and the increase of competition in this market, and on the other hand by social and technical progress. A re-formation of the various economical and commercial sectors, aimed at exploiting the entire available economical potential of the nation to the greatest possible extent, is intended to meet the need for re-structurization.

Apart from these general factors, there are also certain specific problems concerning agriculture and farming, which arise from the position of this sector within the overall framework of the French economy. A high percentage of the population of France lives from agriculture. By 1985, however, only half of the present number of people working in agriculture are still to be employed in this field[1], so that an estimate of 100,000 to 150,000 persons will have to be retrained each year.

In addition, the agricultural sector of the economy will be compelled to deviate from its almost traditional status of isolation from the other social-economical developments of the country; first, in view of production and marketing methods, second, in respect to the achievement of the greatest possible degree of exploitation of all new working techniques and production factors. Above all, this social-economical development is a challenge to the existing education and teaching systems, which are obliged to help the individuals, and to adapt themselves to new surroundings.

The continual increase and re-adaptation of vocational qualifications, demands the establishment of informational and further training facilities in all fields. The restructurization of the economy can only be carried out if a high percentage of the population is retrained. Thus, appropriate steps have already been taken by the various vocational organisations and by the unions.

---

[1] Cf. Réflexions pour 1985, Paris: La Documentation Française, 1964.

In the case of the rural population, these steps, which apply to all the sectors of the economy, must be concentrated on the specific problems resulting mainly from the isolation of agriculture already mentioned. The population of rural areas requires special information geared to their needs, which is termed "adapted information". This information must enable them to view the entire scope of the problems on a social-economic level, to regard agriculture within its overall framework, and to recognise and understand the problems created by the connection between agriculture and the said new economic conditions. Thus, the task in this special case is to achieve an immediate realisation effect among this segment of the population, which would also pioneer an increasing interest in all other forms of teaching and education.

Vocational organisations in the field of agriculture, and the unions, have for a long time been attempting to pave the way towards this re-formation by organising discussions among farmers, and by arranging informatory meetings, speeches, etc. Experience made so far in this field has invariably stressed the value of group work, of meetings between people with similar problems, and of discussions with experts or with the representatives of related economical sectors. In other words, the significance of the form of further training which enlarges the scope of interest of an individual person by personal contact has been underlined. However, an essential factor must be mentioned in this connection, which relates to the key position of the so-called "animateurs"[1] within the groups of participants. These "animateurs", who, in the eyes of the planners, will play a very important part in the future, have a multiple function. They are not only intended to stimulate the population in participating in the various further training and education campaigns, but also have the task of helping the individual to realise his position in a group, in his surroundings, and in society. In this way they constitute a factor which enables the individual to integrate into society and at the same time personalises society for the individual.

In view of the important role of the "animateurs", the French Government passed a law in 1966 concerned with "promotion collective: formation des responsables", "collective further education: recruitment and training of responsible persons"[2] (animateurs).

However, the effective scope of these undertakings is relatively limited, and the vocational organisations and unions are forced by their own structure to confine their work to a local basis, or possibly to one department. For this reason, different solutions must be found in many cases, in order to reach a greater degree of propagation of the information, which would also improve the economical aspect of the campaign. The help of the mass media such as radio and television is required for this purpose.

---

[1] Persons activating adult education in their own social and economical class.

[2] This law is often called "Loi Debré".

II. Previous Development

Television has a special incentive for educationalists and pedagogues, so that experiments aimed at examining the possibilities of using television in adult education were carried out at a very early stage. For example, the "Télé-Clubs Ruraux" (TV Clubs for Farmers) which were first established in 1952 and paved the way in this field, constituted such an experiment. We shall refer to these clubs later on in this report. There are also two large-scale projects in fields other than agriculture, which are certainly worth mentioning in this short report on "television and further education" in France, although they differ completely from "Télé-Promotion Rurale" (Further Education Courses run on Television for People Employed in Agriculture) both in their structure and in their teaching aim.

The first of these projects was an experiment carried out by the French General Post Office in 1960. As this institution controls all radio and television link transmission systems, it was able to use a closed-circuit television network for the training of executive personnel in technical positions.

As far as university training for people in employment is concerned, the "Conservatoire National des Arts et Métiers" began transmitting its courses to viewing centres situated in the suburbs of Paris, which were connected by a television link system, in 1962. Later, this experiment was extended to cover the area around Lille, and was finally broadcast throughout the whole of France[1].

An inter-ministerial committeeunder M. Domerg has been assigned to examine the opportunities offered by the usage of audio-visual means for the purpose of education and training. The "Commission Nationale des Moyens Audio-Visuels" working under the auspices of the prime minister in the light of the experiments described above, has stated that such experiments in further education supported by television should be extended to an entire region.

In view of the urgent problems set by the need for further education for the agricultural population, the "Délégation Générale à la Promotion Sociale" (General Board for Social Advancement) took the initiative and launched an experiment of "Télé-Promotion Rurale" (T.P.R.) in western France. In so doing, this organisation was supported by the Ministry of Agriculture, and by the French radio and television broadcasting service ORTF.

Thus, T.P.R. is an experiment in collective further education, and is aimed at estimating the part played by television both in adult education in rural areas and in the training of the responsible persons, i.e. the "animateurs", who are to assist social-economical development. In this way T.P.R. meets two needs: On the one hand it helps to activate the public's interest in the entire scope of social-economical development in its modus of functioning, on the other hand it helps to recruit and train the "animateurs", who are in future to serve as the basis for all further education campaigns.

---

[1] See the report on "Télé-C.N.A.M."

The project is financed by the "Fonds National de la Formation Professionnelle et de la Promotion Sociale" (National Fund for Vocational Training and Social Advancement). The conception of this project is based on the co-operation of personnel employed in the Ministry of Agriculture, in the vocational organisations, the unions, and the "animateurs" of the "promotion sociale". Later on in this report, we shall go into detail on the exact part played by these various groups, and shall also elaborate on the contribution made by ORTF to the project.

The reason why western France was chosen as the broadcasting area covered by "Télé-Promotion Rurale" should still be explained. This choice was made because:

(1) Western France includes four regions, namely Upper Normandy, Lower Normandy, Brittany and Pays de Loire, which are homogeneous in the composition of their population. In 1967, this area was extended to include Poitou Charentes. The percentage of the male population employed in agriculture is especially high, as compared with the overall male population in employment in these regions.

(2) The number of small farms is very large in this area.

(3) These regions are all characterised by similar agricultural products (primarily stock-farming).

(See Chart I)

By virtue of these related factors, these regions are homogeneous enough to allow the population to be appealed to directly by a joint campaign of collective further education.

The project was prepared and developed between 1963 and 1966. The confrontation of the course aims and the means available, and the examination of previous experiments intended to offer further education to the rural population, made some fundamental principles obvious, that still apply today.

Here again, two projects should be mentioned, as they have had a decisive influence on the development of "Télé-Promotion Rurale". These two projects are:

(1) The "Télé-Clubs Ruraux" (Television Clubs for Farmers), which were first broadcast in western France in 1952. The initiators of this experiment, Messrs. Roger Louis and Josef Rovan, already realised in 1951 what role television could play in further education for the rural population. They therefore produced 15 one-hour programmes with the support

Chart I - Some Details of the Regions inside the Broadcasting Area of "Télé-Promotion Rurale"

	Upper Normandy	Lower Normandy	Brittany	Pays de Loire	Poitou Charente	France
Programme Region No.	(5)	(6)	(7)	(8)	(9)	
1. Overall population density	119	69	88	77	56	86
I 2. Percentage of male population employed in agriculture, as compared to the total male population in employment	14,8	38,3	33,6	30,7	32,3	20
3. Average income per household	99	86	67	69	66	100
4. Migration rate in per cent	- 0,7	- 4,9	- 3,8	- 2,3	- 2,6	8
5. Index of over-representation of the agricultural population	150 to 161	197 to 206	169 to 208	130 to 214	121 to 153	152
II 6. Average age of the population employed in agriculture		42	45	42	45	46
7. Average area of the farms (Ha)	21,2	13,6	11,7	13,9	10,4	17
III 8. Proportion of the individual regions in the total production of 1962 in Cattle	5,5	8,5	8,3	12,5	6,9	100
Pigs	2,9	4,2	10,8	7,8	4	100
Wheat	6	2	4,7	5,6	5,5	100
IV 9. Milk per cow	2,900 to 3,000	2,900 to 3,000	1,700 to 2,400	2,300 to 2,500	2.400 to 2,700	2,600
V 10. Increase in value per "Hektar" (Ha) (1 Hektar = 2.47 acres) (1962) (in 1,000 Francs)	1,5	1,2	1,3	1	0,9	0,9
11. Increase in value per agricultural employee (in 1,000 Francs) 1961/62	11,6	7,7	6	6,6	8	8,5

of UNESCO, which had the title "Etat d'Urgence" (An Urgent Situation) and dealt with the problems of modernising agricultural life.

The farmers watched these programmes in groups, and then discussed the material presented under the supervision of an "animateur", who was usually a teacher at the local school. All in all, the experiment lasted for one year and was then repeated once by ORTF. In addition, a sociological examination was carried out before and after the programmes had been broadcast, in order to determine changes in the students' approach to the modernisation of rural life. Although the result of this experiment was extremely satisfactory, it was not continued for certain reasons, such as the fact that in the meantime almost all households have TV sets, and because of a reduction in motivation, etc. ...

(2) For several years, the "centres d'études des techniques agricoles" (Study Centres for Agricultural Techniques) have been organising discussion sessions, at which farmers can deal with questions relating to the modernisation of production methods and the measures required for this purpose. These meetings are supervised by an agronomist.

These two experiments have underlined the fundamental importance of group work as the basis for reflection and active measures. Thus, it has been decided to group the individual farmers in viewing centres when carrying out the T.F.R. experiment. In fact, this group work is regarded as one of the basic aspects of the entire project.

It is the group work which allows the participants to confront their different viewpoints, and which enables the individual to participate actively in the further education and training of all. Moreover, it can well be that the conditions for mutual procedure can be created from one moment to the next by these repeated gatherings, by the participants jointly reflecting on the same problems, and by their joint attempts to set up rules relating to progress.

The second principle which emerged from the said preparatory work, and which lies on the same level as the principle mentioned above, is that of the "participation" of the individuals in the conception of the experiment and of the filmed and written material, and also in the realisation of the programmes itself (feedback principle).

"Participation" is a fundamental principle underlying further education. It is based on general arguments, that are reinforced by specific arguments in the case of the T.F.R. experiment (for example, the efficiency of the media applied, the danger of a one-sided influence, etc.).

"Participation" in the conception of the experiment is assured by a "comité d'orientation" (orientation committee), which is composed of qualified agriculturists representing the individual departements. Similarly, participation in preparing and developing the film documents is realized through the pedagogical teams, the members of which are appointed by the orientation committee. So far, the accompanying written material has been compiled exclusively by the "teachers". However, efforts are at the moment being made to redesign this material by organising a modus of cooperation with the "animateurs" at the viewing centres. The actual participation in the live programmes is made up of several different components: The TV participants*) take part in the television discussions, and, above all, in the orientation of the television discussions, by asking questions (feed-back method).

The "participation" system requires the farmers to put forward their own problems for discussion, and to formulate these problems clearly. Naturally, this method necessitates that the participants receive the information they require to achieve a definition of their own position.

This now leads us to the third principle underlying T.P.R., which is made up of the necessity of supplying appropriate information, which creates a connection between agriculture and the overall framework of socio-economical development.
We have repeatedly pointed out the need of integrating agriculture into the relevant scope of the economy. For example, the development of agriculture in western France depends largely on the industrialisation of this area. Consequently, an increasing number of farmers will leave this region unless the requisite degree of industrialisation is reached in time. Thus, the educational programmes must take the connection between agriculture and industry sufficiently into consideration, and help to avoid an "isolation of farmers" within the scope of the problems of new development. On the other hand, however, the development of agriculture in a region also depends upon the other regions; this is due to the principle of inter-regional competition. For this reason it is important to compare the prospective interregional development, the approach, the techniques, and the forms of organisation. Thus, the television programmes must expand the sphere of interest of the farmers, and must show them the problems of non-agricultural fields (which are actually also their own problems), and provide them with a knowledge of other forms of agriculture (which compete with their own forms).

The last principle which should be mentioned here is that of supporting the work of existing facilities. "Télé-Promotion Rurale" does not attempt to take the place of existing facilities for further education in the field of agriculture. On the contrary, the principle of the organisation is to leave the said facilities with the full initiative for further education and training in their department, and to support and assist their work.

---

*) This is an expression which was coined in the course of the T.P.R. experiment: It is intended to draw a distinct line between the approach of the participants in this experiment and the general approach of the average TV viewer.

III. The Organisation of "Télé-Promotion Rurale Ouest"

The following chart depicts the organisational structure of "Télé-Promotion Rurale". The various facilities or groups of participants are described in the same order as shown in the chart (see Chart II).

(1) The orientation committee gives the participants an opportunity of meeting, and of confronting their viewpoints; in addition, they establish contacts with the producers of the programmes. This orientation committee is made up of representatives of official bodies (agronomists in executive positions), of representatives of vocational organisations and organisations for social advancement situated in the broadcasting area (the latter constitute a great majority in the orientation committee), and of producers (from the pedagogical centre, from CNDP, and from pedagogical and film production teams).

The committee has the task of determining the general regulations for the work done by "Télé-Promotion Rurale" in the target area. This work consists of the following: the programmes, pedagogical principles, principles concerned with the organisational structure of the viewing centres, etc. After these regulations have been laid down, the pedagogical teams (appointments , which require the agreement of the orientation committee) and the pedagogical and technical centre are assigned with the production of the programmes.

(2) The Pedagogical and Technical Centre

The pedagogical and technical centre is assigned within the framework of the regulations set up by the orientation committee, to promote and supervise all the teams and to take charge of the production of the programmes. This centre is made up of a director (part-time) and three assistants (full-time), and is divided into the following departments: general matters, production, training and studies, administration.

(3) The Pedagogical Production Team

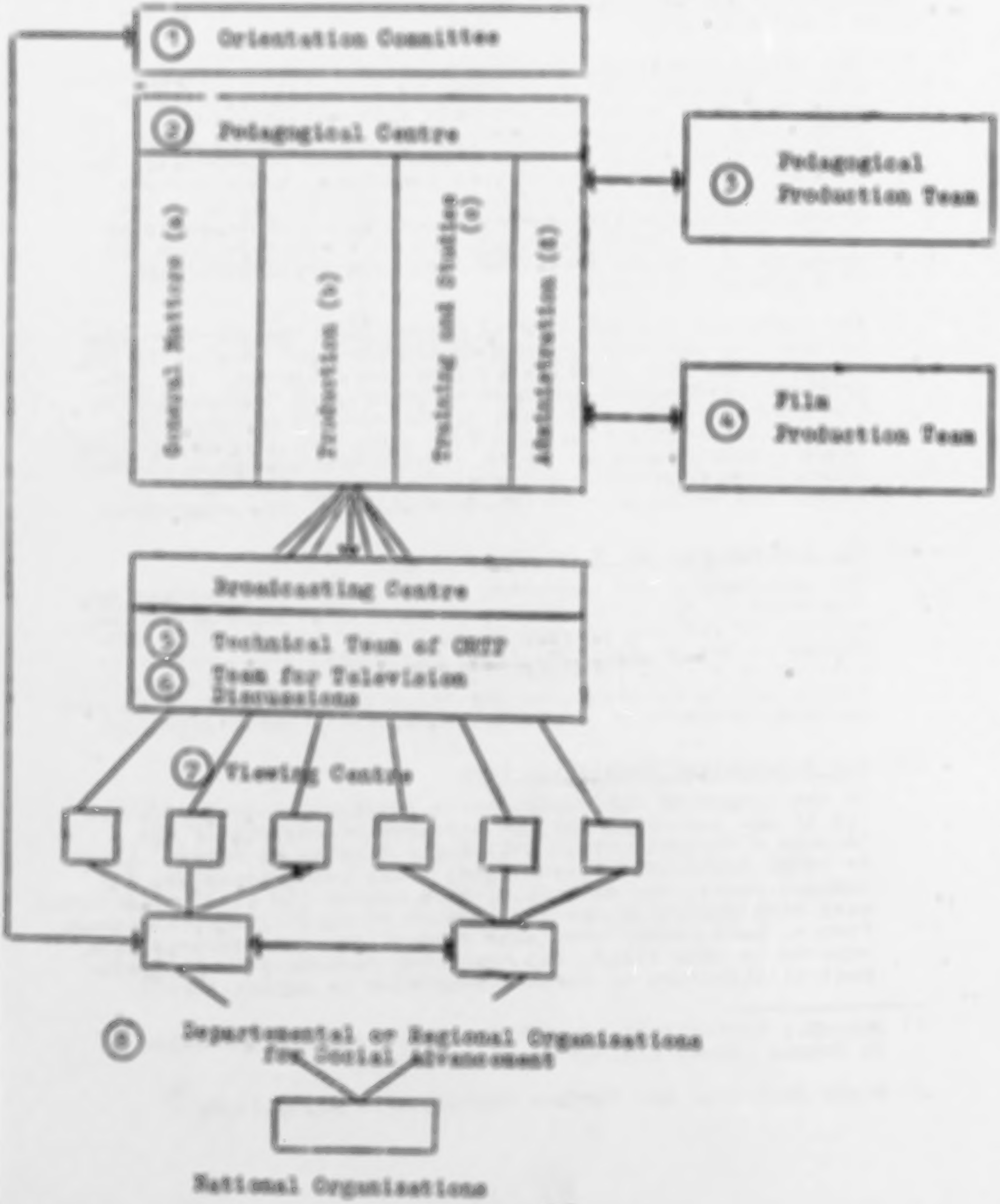
In the course of the experiment a pedagogical team consisting of the lecturers and the research scientists of the "Centre d'Economie et de Sociologie Rurales de Rennes" (Ecole National Supérieure Agronomique)[1] has been appointed. For several years, the members of this centre (20 to 25 scientists) have been analysing the development of agriculture in western France, have established many connections and contacts with experts in this field, and have been dealing with the pedagogical structure of further education in agriculture[2].

---

[1] Approx.: Agricultural Centre for Sociology and Economics in Rennes (State College for Agriculture)

[2] State Institute for Further Education in Agriculture

Chart II - The Organization of "Télé-Promotion Rurale Ouest"


① Orientation Committee
② Pedagogical Centre
General Matters (a)
Production (b)
Training and Studies (c)
Administration (d)
③ Pedagogical Production Team
④ Film Production Team
Broadcasting Centre
⑤ Technical Team of ORTF
⑥ Team for Television Discussions
⑦ Viewing Centres
⑧ Departmental or Regional Organisations for Social Advancement
National Organisations

Thus, these teachers and scientists are very well acquainted with agriculture in this area. It is obvious that it is the existence of this centre which has made it possible to carry out the experiment in such a short period of time, and which has made the experiment so successful.
The pedagogical team was present at the meetings concerned with the training of the "animateurs" for their work, and also participated in the editing of the written material and the production of the films. This production of the films set the team with altogether new problems, as the lecturers were thereby compelled to change their pedagogical habits completely. They had to face the camera and conduct an "active lesson", based on the particular conditions of television, etc.

The pedagogical team did not receive any special training in the usage of audio-visual methods, and had to learn these techniques in the course of practical work. Nevertheless, this acquisition of knowledge and information was facilitated substantially by the friendly relationships between the pedagogical team and the film production team. The appreciation and competence of the responsible principal of the film production team played an important part and contributed decisively to the success of the experiment. The pedagogical team holds numerous consultation meetings before the production of a film is commenced. However, the actual production of each film is left to a professor, who has the exclusive right to make the requisite decisions, and is responsible for the production.

(e) The Film Production Team

The experiment has been facilitated greatly by the contribution made by the film library of the Ministry of Agriculture, which also made its extensive experience available in the production of documentary films in agriculture.

The power of television in its effect on an anxious agricultural population, requires a careful selection of material in order to effectively support the conception and thoughts of the pedagogical supervisor of the programme in question. If the project is to be a success, it is absolutely necessary to know and understand the rural population and its difficulties, and to be aware of the modus of approach required for promoting participation in the programmes (without which the project would inevitably be a failure). The pedagogical team has facilitated the work of the film production team substantially, by creating a positive opinion of the experiment among the rural population. Similarly, the film production team on the other hand, made the "teachers" work a lot easier, by showing appreciation of their problems.

(5) The ORTF Technical Team

During the operation of the experiment very friendly and effective connections have been established between the pedagogical team, the film production team, and the technical team. The ORTF technical team relieved the pedagogues and the responsible persons in the other teams from all burdens in technical respect, and has created an atmosphere of confidence and fruitful cooperation, which has contributed greatly to the success of the programmes.
The entire experiment met with the full appreciation of ORTF, and was supported very actively by this organisation.

(6) The Television Discussion Team

The television discussion team ("Télé-Débat) has been formed owing to the continual attempts to create a dialogue between the TV participants and the pedagogical centre. The problems encountered by the TV participants serve as the basis for this discussion: Questions, which the students raised in 1966 and 1967 by telephone, and which they asked directly on TV in the 1967/1968 course, are treated by a group of 4 to 6 guests under the supervision of a chairman.

The chairman is usually the responsible "teacher" for that day's programme (in other words he is in charge of the film and the accompanying material). He opens the discussion, supervises and concludes it.

The guests are agriculturists or personalities well-known for their competence and experience in connection with the subject in question.

In 1966 and 1967 an observer took part in the discussions, who represented the television participants. Thus, he was assigned to make sure that the discussion groups did not deviate too greatly from the question asked, and that the answers given were precise. In addition, it was his task to summarise long contributions and to act as a substitute in supervising the meetings. It can therefore be said that the observer fulfilled a primarily pedagogical function.

(7) The Viewing Centre

The farmers participating in the experiment meet at viewing centres. Although the number of participants attending the individual centres differs greatly, a group of 15 participants per centre appears to be the best solution, both in technical (viewing conditions), and in pedagogical (participation in group discussions) respect. Discussions are supervised by an "animateur", who is either an agriculturist, agricultural technician, or a teacher.

The success of the entire experiment depends upon the quality of the work done by the viewing centre. The following facts must be considered:

(a) Television does not take the place of the existing organisations for further education and training in agriculture, but supports these organisations.

(b) Further education is based on general participation, the dialogue, and the group discussion, as the films and documents are merely intended to support these course components.

Thus, the success of the experiment depends on the success of the group discussion, which is intended to enable each participant to become conscious of his own role and to contribute to the formulation of the requisite measures to be taken.

(d) The Organisations for Social Advancement

Relatively speaking, it is much easier to set up a production and distribution network, than to establish a system of viewing centres. The reason for this is that the students must have a genuine motivation for participating and that the "animateurs" must realise that the fulfillment of their task will be decisive for the success or failure of the experiment. Moreover, the vocation organisations cannot assume any responsibility unless they are sure of active participation of the individuals, and of a supervision of orientation and of the results of the experiment, as the power of the mass media television does not only give rise to confidence in the effectiveness of this media, but also gives one a feeling of fear of it.

In view of the aim of collective further education, television programmes without a pedagogically-orientated viewing structure enabling confrontation to be made and providing for criticism and joint construction, would be void of their importance and impact.

Thus, the organisation of a network of viewing centres requires both the collaboration of the orientation and supervision organisations, and an extensive initiative on the part of the state and private organisations for further education, when establishing the viewing centres.

Within the framework of this experiment, the pedagogical centre did not establish a single viewing centre from its own initiative. In agreement with the orientation committee, only those centres were acknowledged and accepted, which have a trained "animateur", who was prepared to participate in the supervision and evaluation of the results. Some 150 centres were authorised in 1966/1967, and 350 centres in 1967/1968.

In 1968 the function of the departmental organisations for social advancement was reinforced: Now, these organisations are to play a threefold part, (1) as the founders or promoters of the viewing centres, (2) as a body of coordination between the individual viewing centres, and (3), as a selective and training facility for the "animateurs".

(9) The participants

It is the ambition of "Télé-Promotion Rurale" to get as large as possible a number of farmers living in the target area to participate in the experiment. Persons interested in participating in the experiment do not have to undergo any formalities in order to attend the "Télé-Promotion Rurale Days", and they are not required to have any previous knowledge apart from a certain degree of experience in agriculture.

The programme and the dates of the T.P.R. Days are announced in press articles and in agricultural journals, in prospectuses and informational brochures, and by radio and TV. In addition, they are made known to the public by an information and consultation system, organized by the vocational facilities and unions, and by the institutes for social advancement.

IV. The Curriculum of "Télé-Promotion Rurale"

The considerations as to the method of further education in agriculture, and the role of the various elements concerned can be summarized in the following way, in respect to the courses offered by "Télé-Promotion Rurale":

(1) Film material providing the information geared to the specific requirements, by virtue of which the problems to be treated by the discussion groups are made evident;

(2) The group discussions;

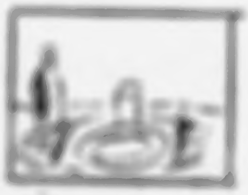
(3) The television discussions as a feed-back system;

(4) The written material preparing and elaborating the subject treated.

It is obvious that the value of each of these elements depends mainly on their degree of inter-action. This fact induced the organisers to combine the various elements in units, which are distributed over the course of a whole day. The "typical day of a TV participant" is structured in order to achieve the best possible presentation and elaboration of a given subject (see Chart III).

The work of "Télé-Promotion Rurale" progresses in cycles of 6 to 8 TV Participant Days.
After the trial programme, which was broadcast on February 18, 1966, and in which about 1,000 farmers participated, 8 days of "collective further education" were organised from November 1966 to February 1967. These days were held twice a month, on a Friday.

Chart III - A Day of the TV Participant

9^{00} 9^{15}	Presentation of the subject	live	15 minutes
9^{15} 10^{00}	Group work Accompanying material		45 minutes
10^{00} 10^{45}	TC-cinema	film	45 minutes
10^{45} 11^{00}	Introduction of the guest participating in the discussions	live	15 minutes
11^{00} 1^{00}p.m.	Group work		2 hours
1^{00} 2^{30}	Lunch		1 1/2 hours
2^{30} 3^{30}	Television discussion	live	1 hour
3^{30} 4^{30}	Group work Results:		1 hour

Group work (total): 3 3/4 hours
Television (total): 2 1/4 hours

From November 1967 to February 1968, two cycles consisting of 6 programmes each were broadcast. These programmes were broadcast once a week, also on a Friday. The first of these cycles continued on the lines of the 1966-67 cycle, which dealt with the development of agriculture, whereas the second cycle was concerned with the development of the structures of agricultural production.

Two new cycles were launched in 1968 - 1969, with a meeting day for the television participants held every Wednesday. The first cycle was again concerned with the development of the agricultural production structures in western France, while the second one dealt with stock-breeding in western France and in the Common Market (see Chart IV).

Chart IV - The Curriculum of the Programmes

Year	Date	Subject
1966-1967	Nov. 4, 1966	Household consumption
	Nov. 18, 1966	Trade organization and food distribution
	Dec. 2, 1966	Agricultural prices and markets
	Dec. 16, 1966	Agricultural industry and food industry
	Jan. 13, 1967	The structures of agricultural production
	Jan. 27, 1967	Agriculture and the overall economy
	Feb. 10, 1967	The sociology of agricultural development
1967-1968		
Cycle I:	Nov. 18, 1967	Consumption
	Dec. 2, 1967	Market and Prices
	Dec. 16, 1967	Processing and Distribution
	Jan. 5, 1968	The structures of agricultural production
	Jan. 19, 1968	Town and country
	Jan. 30, 1968	Agricultural associations
Cycle II:	Nov. 25, 1967	The great hope
	Dec. 9, 1967	I am my own master
	Dec. 25, 1967	Production Plants
	Jan. 12, 1968	Agricultural groups: why not?
	Jan. 26, 1968	The new cooperative
	Feb. 2, 1968	The promotion of development by organization work

Chart IV - continued

Year	Date	Subject
1968-1969		
Cycle I:	Oct. 16, 1968	Presentation of the cycle (for the "animateurs")
	Nov. 13, 1968	The great hope
	Nov. 27, 1968	I am my own master
	Dec. 11, 1968	Production plants
	Jan. 8, 1969	Agricultural groups' why not?
	Jan. 22, 1969	The new cooperative
	Feb. 25, 1969	The promotion of development by organization work
Cycle II:		
	Oct. 23, 1968	Presentation of the cycle (for the "animateurs")
	Nov. 20, 1968	The European challenge
	Dec. 4, 1968	"Madame Europe est servie" (= Europe is provided for)
	Dec. 18, 1968	Ways and methods of stock-breeding
	Jan. 15, 1969	The beef market
	Jan. 29, 1969	The "adventurous" story of milk
	Feb. 12, 1969	Building up the future

Naturally, the months November - February were selected for the broadcasting of the programmes as they fitted best into the sequence of agricultural work.

We now want to come back to the pedagogical structure of these days and to the various elements they are constituted by.

(1) The Television Material

This consists of the films and of the television discussions.

(a) The Film Documents (see Chart V).

We are of the opinion that the term "film documents" is more appropriate than the word "film". These documents have the function of illustrating the topic of the day, clarifying the problems by confrontation, stimulating questions raised by the television participants, providing the participants with material for discussion and of inducing them to draw their own conclusions and to set up their own rules of action. The documents consist of interviews, film excerpts, pedagogical mountings (card

Chart V - A list of the Written Accompanying Material and the Film Documents

Written Material	Film Documents
Cycle I:	
Household consumption	Consumption
Agricultural prices and markets	Markets and prices
Processing and distribution	Processing and distribution
The structures of production	The structures of production
The relationships between agriculture and the overall economy	Town and country
The sociology of agricultural development	Agricultural associations
Cycle II:	
An analysis of present structures	The great hope
The modernization of farms run by one family	I am my own master
Production plants	Production plants
Agricultural groups	Agricultural groups: why not?
The renewal of the vocational campaign: the cooperatives	The new cooperative
Agricultural structures and regional development	The promotion of development by organization work

games explaining the sequence of operation of a work bank, toys depicting various aspects of group agriculture, etc.), maps, charts, and trick films, etc. They are invariably compiled by agriculturists, and describe traditional situations, current examinations, and novel developments. They compare the individual elements and oppose them to each other, and are intended to stimulate questions and contemplation. Nevertheless, it appears that considerable progress will still have to be made in this field, and that further examinations will have to be carried out, in order to reach an even more satisfactory command of the audio-visual media. The possibilities of application of these programmes are very flexible, as each programme consists of a homogeneous unit, within which a basic subject is treated and discussed. Thus, the participants are able to select subjects in which they are specially interested, although they are recommended to take part in a complete cycle.

(b) The Television Discussions

In 1966/1967 10 viewing centres (so-called "sample centres") were phoned by the broadcasting station prior to each programme; each centre placed a question. By means of these questions it was possible to form a programme lasting one hour, which was broadcast live and compiled according to the participants' problems.

The first two programmes were broadcast after two hours of preparatory work, whereas the six last ones were transmitted live. In this connection, the TV participants showed a noticeable preference for the live programmes. In 1967/68 a panel discussion between the guests and the viewing centre was organised, which was also broadcast live. In order to realise this undertaking, the discussion either took place in one of the viewing centres, or a group of participants was asked to the respective ORTF broadcasting station.
This method constituted a step forward, as the direct participation of the farmers on the television screen is a kind of "advancement" in itself. On the whole, the TV participants appear to appreciate the television discussions more than the film documents. Accordingly, the discussions were given a more important and comprehensive place within the framework of the 1968/1969 programmes.

(2) The Written Material

The pedagogical centre published two kinds of written material:

- the "sensibilisation" documents
- the "comprehensive" documents.

In 1966/1967 the students received only the comprehensive documents. However, experience shows that they were not read much (at least prior to the programmes).
This fact led to the production of new documents in 1967/1968, the so-called "sensibilisation" documents, which presented some fundamental definitions and some charts, which are to serve as a basis for discussion. In addition, they contained a film script and certain topics, designed to induce the students to reflect on the contents of a day's programme.

This introductory material, the structure and design of which is made as attractive as possible (in colour, with photographs, illustrations, etc.) is given to the farmers free of charge before the "T.P.R. Day", and is intended to stimulate them to participate at a viewing centre. (In 1967/1968 some 60,000 copies of this material were distributed.)
The "comprehensive documents", which are written and compiled by the lecturers, deal with the subject in question in a more complete way. The students must pay for these documents, which are intended to be perused mainly after the "T.P.R. Day", which in turn is to stimulate the participants' interest in

the material presented. Wherever possible, this material is divided into "teaching units", which are presented on one page; it is always attempted to print the text with large gaps between the lines, in order to avoid an impression of density and to enable the participants to supplement the text with personal remarks. (In 1967/1968 about 25,300 copies of this material were distributed.)

Important progress has been made in regard to the exterior design of the accompanying material, but further studies are at the moment being carried out in order to make further improvements.

(5) The Group Discussions

The group discussions (which are supervised by a specially-trained "animateur") constitute a facility providing for query of the suggestions made on television. The pictures and texts are discussed, and the participants can accept, waive, or adapt them, and can call for more complete explanations, etc. The contents and the real significance of the television discussions are extracted from the group discussions, as the TV discussions form a programme based entirely on the problems and reflections of the television participants.

(6) The "Animateurs"

As group discussions are a decisive element in every further education and training campaign, it is obvious that the part played by the "animateurs" within the framework of the overall programme is of fundamental importance.

(a) The function of the "Animateurs"

The function of the "animateurs" can be summarised in the following way:
Motivation: To explain the basic subject of the programmes, their logic sequence of presentation, and their significance and interest in view of the appreciation of developments in the field of agricultural life.

Explanations: of various aspects of the accompanying material (terminology) and of the film.

Stimulation and activation of group discussions together with constant supervision of active contribution by the participants. In other words, the "animateur" makes sure that each participant listens properly and can re-formulate the statements of other participants, and is also able to express his own thoughts, without deviating from the subject too much.

Formulation of the questions submitted to the pedagogical centre. (Experience has shown that it is difficult to place questions, which do not in reality consist of several individual questions).

Discipline in maintaining a schedule: It may possibly prove difficult to induce the farmers to adapt themselves to a fixed timetable, but the television system requires the curriculum to be adhered to exactly.

Support of the group in formulating their own conclusions, simultaneously avoiding any kind of exterior influence.

Participation in the supervisory and evaluation measures: The "animateurs" must make sure that the questionnaires are filled in correctly, without however influencing the farmers' answers.

(b) Origin of the "Animateurs"

The following chart provides a survey of the origin of the "animateurs" who supervised the programmes in 1966/1967.

(This observation applies to 200 "animateurs".)

	Percentage
Farmers	10
"Animateurs" from organizations for social advancement	9.2
Personnel from agricultural organizations and agricultural technicians	52.2
Teachers	28.6
Total	100

In principle, the "animateurs" from organizations for social advancement have the best qualifications for this occupation. Nevertheless, there are several unclear factors as to the relationship between the origin of the "animateurs" and the effectiveness of their work. At present, examinations are being made which are to answer these questions.

On the other hand, however, the standard of education of the "animateurs" differs greatly:

	Percentage
University education	23.2
Secondary school leaving certificate (Cf. GCE "A-Levels"; Junior College Graduation)	57.5
Other education	19.3
Total	100

In addition, the majority of the "animateurs" had completed a practical training course in pedagogics and technology.

(c) The Training of the "Animateurs"

A person's training depends both on the activity this person is to carry out later, and on his previous occupations. The "animateurs" participating in this project most definitely represented a heterogeneous group of the population, which was caused by their origin and by their varying standards of education. When considering the novel status and the conditions of the experiment, and the change of standards it induced in the ladder of social advancement, this fact is by no means surprising.

The "animateurs" were trained in 1966/1967 in two consecutive seminars lasting four days each. This training was geared to their function and tasks, and also to the general subject of the programmes. (Agriculture within the framework of economic and social development.)

The first practical training course dealt with the aims, means, and methods of collective further education, and especially with those of "Télé-Promotion Rurale": its origin, its organisational set-up; its significance; the specific characteristics of the audio-visual media (significance of pictures); the methods of group supervision; and participation in supervisory and evaluation work.

The second seminar was devoted to the social-economical training of the "animateurs". In the course of this seminar the directors of the programmes presented the accompanying material, the film (basic concept), and the material intended for usage by the "animateurs". When these components were presented, discussions between the "animateurs" took place every time, and the directors of the programmes were asked questions.

In 1967/1968 the expansion of the project, and the large number of the instructional staff (all in all, there were 500 "animateurs"), led to a more flexible training method. In 1968/1969, in turn, the technical and pedagogical centres decided to train instructors only, and to use television to support and reinforce the "animateurs" seminars on a departemental basis.

V. The Evaluation

(1) The Groups of Participants

The participants are requested to fill in questionnaires for statistical reasons.

These questionnaires show that 75 % of the participants are male. 20.5 % are between 18 and 20 years old (measures taken in France for promoting social advancement aim exclusively at people of 18 or more), 30 % are between 20 and 29, 27.5 % are from 30 to 39, and 11.5 % are 40 to 44. Thus, only 10 % of the television participants are 45 years or older. It is estimated that approximately a third of the participants, i.e. those under 25 years of age, are single.

All of the participants work full-time in agriculture. The 25 % of female participants is made up of women doing housework and helping the men with the agricultural work.

63.44 % of the television participants are farmers with their own farm, whereas 6.02 % have a joint agricultural undertaking together with other farmers. 27 % of the participants are dependants working on farms, and 2.59 % are agricultural employees. 8.25 % are employed by agricultural organisations, and 7.14 % are still in training, of which the majority are dependants of the farmers' and study full-time at training centres. A small percentage of the participants (approximately 3.5 %) is made up of people employed in non-agricultural professions (craftsmen, teachers).

Viewed from the aspect of their standard of education, 38 % of the participants hold the elementary school leaving certificate, 22 % hold an agricultural apprenticeship qualification, and 14 % have an extended training certificate in agriculture. 13 % of the participants have graduated from secondary school leading to approximately G.C.E. "O-Level" (High School Diploma), and 8 % continued to "A-Level" (Junior College Leaving Certificate). 5 % of the participants even have a university education. It should, however, be noted that the "animateurs" are included in this 5 % group.

(2) The Effectiveness of "Télé-Promotion Rurale"

It is not possible to use the same criteria as apply to other educational and training programmes, when evaluating the results of the "Télé-Promotion Rurale" experiment.

An objective appraisal of the effectiveness of the experiment will not be available until a longer period has passed.

The only concrete factor which can be taken into consideration is the interest shown in the project: The total number of participants attending the "T.P.R. Days" has doubled between the 1966/1967 course and that of 1967/1968. During the same time, the number of viewing centres has risen from 150 to approximately 350.

In addition, an estimate of 10,000 viewers watch the T.P.R. programmes alone at home, although this modus of exploitation of the course was by no means intended by the organisers. The T.P.R. project, the success of which can be measured by its influence on the development of the economy, probably also depends on the density of the viewing centres. Seen from this viewpoint, some realizations constitute proper sample areas requiring a specific and more profound analysis.

The T.P.R. project can also be appraised from another perspective: It exercises a stimulating, organisatory and constructive effect both on the formation of basic organisations for further education and training, and on the work and activities of these organisations. Furthermore, the project supports the efforts of a large number of agriculturists and technicians, who are determined "to do something", but did not have the ways and means of carrying out their intentions until the project was launched. On the other hand, the power and scope of T.P.R. will, in some cases, lead to the relegation of certain types of further education. T.P.R. induces the regional directors and the "animateurs" to jointly decide upon the basis of a campaign of further education, which is linked closely with regional development. In this way it came to a change of structure of the A.P.A.O. (organisation for agricultural further education in western France), which supervises the T.P.R. experiment. This change was made in order to enable the A.P.A.O. to constitute a better representation of all social and vocational groups, in so doing determining a definite policy for further education in western France.

(5) The Cost of the Experiment

No special studies have been undertaken in respect to the cost of this experiment. It is, however, estimated that "Télé-Promotion Rurale" will - although the project initially required greater investments than would have been the case for a traditional campaign in further education - eventually become more economical than a traditional course, parallel to the increase in the number of participants.

Conclusion

In order to gain an idea of the scope of development still possible for "Télé-Promotion Rurale", it only has to be considered that, if this experiment were viewed regularly by 10,000 participants, it would still only reach 1.6 % of the farmers and 0.75 % of the agricultural population in western France.

Although many efforts still remain to be made in this respect, the responsible experts are now convinced that television is in a position to play an important part in agricultural development, provided that certain conditions of application are maintained.

THE OPEN UNIVERSITY

Report of the
Planning Committee
to the Secretary of State
for Education
and Science

Preface

The Open University in Great Britain is the only project in this compilation, that has not yet been realised. However, this is all the more the reason why this report is a valuable contribution to discussions on the use of "multi-media-systems" in the field of education. The following report describes in an impressive manner the theoretical considerations underlying such a project, and simultaneously makes the organisational and political problems evident, that face the best possible realisation of these ideas. Finally, it provides solutions derived from negotiation in the form of extensive discussions between the participating and interested organisations, which overcome these problems without significant losses in theoretical and pedagogical respect. The thorough contemplation devoted to the many theoretical problems, the high degree of responsibility, the preparedness for co-operation and the far-reaching approach of the groups participating or showing interest in the planning work, which become evident in the way the innumerable organisational difficulties of the project were tackled, can be taken as examples for the conception of similar enterprises in other countries.

The following report of the Planning Committee of the Open University has been printed with the kind permission of the Controller of HER MAJESTY'S STATIONERY OFFICE.

The Open University Planning Committee:

Sir Peter Venables, Ph.D., F.R.I.C., Chairman (Vice-Chancellor of the University of Aston in Birmingham).

Sir William Alexander, Ph.D., M.A., M.Ed., B.Sc. (General Secretary of the Association of Education Committees).

Sir Eric Ashby, F.R.S. (Vice-Chancellor of the University of Cambridge).

Dr. E.W.H. Briault, M.A. (Deputy Education Officer of the Inner London Education Authority).

Professor Asa Briggs, B.Sc.(Econ.), M.A. (Vice-Chancellor of the University of Sussex).

Lord Fulton, M.A. (former Vice-Chancellor of University of Sussex).

Lord Goodman, M.A., LL.M. (Solicitor; Company Director; Fellow of University College, London; Chairman of the Arts Council).

Mr. Brian Groombridge, M.A. (Education Officer, Independent Television Authority).

Professor Hilde T. Himmelweit, Ph.D. (Professor of Social Psychology, London School of Economics).

Mr. I. Hughes, LL.B. (Warden of Coleg Harlech).

Sir Brynmor Jones, Ph.D., LL.D., Sc.D., F.R.I.C. (Vice-Chancellor of the University of Hull).

Dr. F. J. Llewellyn, B.Sc., D.Sc., LL.B., F.R.S.(N.Z.) (Vice-Chancellor of the University of Essex).

Mr. Norman MacKenzie, B.Sc.(Econ.) (Director of the Centre for Educational Technology at the University of Sussex).

Mr. Roderick MacLean, M.A., M.Ed. (Director of the University of Glasgow Television Service).

Dr. A. J. Richmond, B.Sc.(Eng.), F.I.Mech.E. (Principal of Lanchester College of Technology).

Professor Lord Ritchie-Calder, C.B.E., M.A. (University of Edinburgh).

Mr. J. Scupham, O.B.E., B.A. (former Controller of B.B.C. Educational Broadcasting).

Professor Roy Shaw, B.A. (Director of Adult Education, University of Keele).

Professor Harold Wiltshire, M.A. (Professor of Adult Education, University of Nottingham, now seconded to the Institute of Adult Education, University of Ghana).

CONTENTS

Paragraphs

I. Remit of the Planning Comittee .... 1 - 5
II. Objects of the Open University .... 6 - 18
III. General Approach to Open University Education ... 19 - 36
IV. The Charter and Statutes of the Open University . 37 - 42
V. Administrative Structure and Appointments .... 43 - 53
VI. Degree Structure and Courses .... 54 - 70
VII. Academic Staffing .... 71 - 72
VIII. Relationships with the BBC .... 73 - 88
IX. Relationships with other Organisations .... 89 - 92
X. Premises and Equipment .... 93 -104
XI. Finance of the Open University ....105 -114
XII. Conclusions ....115 -119

I. REMIT OF THE PLANNING COMMITTEE

1. We were appointed by the Secretary of State for Education and Science in September 1967 with the following terms of reference:

> To work out a comprehensive plan for an Open University, as outlined in the White Paper of February 1966, "A University of the Air", and to prepare a draft Charter and Statutes.

2. Our first meeting was on 23rd October 1967, and altogether we have held 10 meetings. At these the Committee has considered many reports and papers from the three working groups it established, namely: Ways and Means, Students and Curriculum and Constitution and Organisation. In all, the Groups have held 41 meetings, which have included discussions with representatives of a wide range of public bodies and institutions and the consideration of evidence submitted by such bodies and by individuals.

3. During the past year there have been many enquiries about our work, the nature and courses of the University and the programme of development, and there have already been applicants for enrolment. There has been an encouraging mounting interest in the University stimulated by the announcement of senior appointments. There have been cogent reasons why we have not yet made public statements of policy, and of detailed plans and procedures. Among these are the wide range of the special, indeed novel problems to be considered and resolved; the necessity of having both general and detailed consultations with many interests; the critical importance of staffing in relation to the projected date of starting in 1971; the preparation of a Draft Charter, and the due appointment of the Council and the Senate to take full responsibility as soon as possible for the development of the University. To all these must be added the very human consideration of not engendering false hopes by premature announcements of plans for development.

4. We therefore particularly welcome the opportunity, which the submission of the Draft Charter and Statutes for consideration by the Privy Council now affords, to submit this report on our work. We hope that the report will be published and given a wide circulation at this important stage in the planning of the University.

5. We were asked "to work out a comprehensive plan for an Open University". We would emphasise that in this report our plan is in many respects still tentative. Furthermore, we have always been aware that even our comprehensive plan should be a sketch-plan, leaving the elaboration of the detailed blueprint to the Council and the Senate of the University.

II. THE OBJECTS OF THE OPEN UNIVERSITY

6. In the past limited opportunities for education, determined by social, economic and political factors, have resulted in a low educational attainment on the part of a vast number of individuals. This low level of attainment has been taken as firm evidence of limited innate ability, which in turn was held to justify an absence of any increase in educational provision. It is both unjust and unwise to ascribe the adventitious hazards of nurture to alleged inherited defects - unjust to the individual, and unwise for society thus to deny the greatest educational opportunity to the greatest number of citizens. For long regarded as a privilege of the few, the opportunity to engage in higher education is at last becoming widely accepted as a basic individual right. In these changes in recent years, science and technology have proved to be most powerful catalysts of educational demand and development. Moreover, education generally, and higher education in particular is, at one and the same time, a necessary condition of a modern technological society and a defence against its abuses. The two conditions - of securing on the one hand national economic viability through increased productivety and efficiency of management, and of ensuring, on the other, the personal fulfilment and happiness of individual citizens in a democratic society - these are the burden in varying measure of most, if not all, recent major educational reports - Crowther, Robbins, Newsom, Dainton, Swann, and of various other manpower reports.

7. The educational tasks yet to be accomplished relate not only to the present and the future, pressing and numerous though these are, but also to the past. Accurate estimates are impossible as the data are not available, but a broad comparison may be made in terms of the proportion of the 18 year old group entering full-time higher education at the beginning and end of the last three decades, and when the Robbins Report* targets are reached (they are in fact likely to be exceeded) in 1980. Without doubt there has been a substantial, though slowly diminishing proportion of people able enough to enter higher education who were born too soon to reap the benefits of increasing educational opportunity. If the Robbins Report targets had applied retrospectively over the last three decades, the total number concerned could hardly be less than one million. It is not to be supposed that, of these, the majority would be both able and willing to undertake study after a gap of years, but perhaps 10 per cent. (at least 100,000) might. That this is a reasonable first estimate is supported by some pilot research investigations (paragraphs 9 and 10).

8. Another method of making preliminary estimates of numbers is to consider the possible requirements of specialist professional groups. The teaching profession is a case in point, with about 240,000 certificated non-graduate teachers in England and Wales, and some 15,000 in Scotland, who had no opportunity to

---

* Higher Education - Report of the Committee under the chairmanship of Lord Robbins; Command 2154, H.M.S.O. 1963.

take the B.Ed. degree or otherwise gain graduate status. Again, and recent discussions with professional organisations support the view, at least 10 per cent. (about 25,000) would be a reasonable first estimate. With the incentives of graduate status and a related salary allowance, and with established habits of study, such teachers are likely to prove a highly committed group of students. Preliminary enquiries have been received which indicate that there are likely to be other significant groups of professional students interested in the University's courses.

9. We commissioned a survey of the interest of the adult population in the Open University. This was carried out for us by the National Institute of Adult Education. A random sample of some 3,000 adults over 21 years of age was chosen from six areas and of these some 70 per cent. returned the questionnaire. Each was asked to express his or her degree of interest in the Open University, having been presented with a short outline of the opportunities that it would offer and of the effort that would be involved. The degree of interest was graded; "not interested", "mildly interested", "very interested", or "I will certainly be one of the first students". About 5 per cent. fell into the "very interested" category and about 0.9 per cent. into the "I will certainly be one of the first students" category. These proportions were consistent between the six individual areas, lending some further support to the validity of the survey.

10. If these proportions are applied to the whole unselected adult population of the country, they yield a figure for the possible student number of 170,000 - 450,000 (allowing for the limits of error of the ratio) in respect of the "very interested", and of 34,000 - 150,000 in respect of those people intending to register as students. Thus the results of the survey are in general agreement with the broad calculations made by other means (paragraphs 7 and 8). It seems to us, therefore, that there are good grounds for expecting candidates for the Open University to come forward in substantial numbers.

11. It is known from experience both at home and abroad, but notably at the University of New England, Armidale, New South Wales, that adult students, whose attitudes, habits and motivation differ from those of immediate school-leavers, can and do succeed in obtaining university degrees largely by correspondence tuition. There is thus good reason to suppose that such students will succeed in the Open University, particularly as correspondence will be closely integrated with tuition by radio and television (paragraph 32).

12. The University will provide first and higher degree courses for such adult students, but its work would not cease if the problem of past deficiencies were adequately dealt with. Social inequalities will not suddenly vanish, nor will all individuals suddenly mature at the same age in the same environment. The recent book "All our Future" by J.W.B. Douglas et al,* provides

---

* All Our Future, by J.W.B. Douglas, J.M. Ross and H.R. Simpson; published by Peter Davies, 1968.

timely evidence in this regard of the large number of boys and girls who have the ability to become scientists, doctors, civil servants, teachers and managing directors, but who leave school every year at the age of fifteen. It is probable that this will still continue to be substantially true after the raising of the school leaving age to sixteen, now projected for 1972-73.

13. Furthermore the latest U.C.C.A.[*] Report shows that, of some 100,000 applicants for university entrance in 1966-67, just under half found places. Of the remaining 50,000 candidates, U.C.C.A. estimate that 20,000 failed to achieve the minimum entrance standard currently set by universities. Thus, some 30,000 boys and girls, all qualified to proceed to a degree course, failed to satisfy their ambition. Some, no doubt, entered other institutions of higher education, but it seems unlikely that, even with further university expansion, there will be a sudden elimination of a need for more opportunities. We do not, therefore, see the need for the Open University as a transient one, lasting only until such time as the "backlog" of adults denied and anxious for higher education is eliminated, but as a continuing one throughout the foreseeable future.

14. Thus the main work of the Open University will focus upon adult students. Indeed, we believe that it is always preferable for those aged 16 - 21 years in employment to attend sandwich courses, block release courses, or part-time day release courses at technical colleges, and at degree level, sandwich courses at technological universities and polytechnics designate. We consider that only those whose circumstances make it impossible for them to do so should be enrolled in the courses at the Open University.

15. Besides providing fresh and renewed opportunities for such students as we have been discussing, the University will have an important role arising from the changes in, and the increasing rate of change within modern technological society. This is exemplified in Annex D on Technological Innovation in the Swann Report,[**] and the Report remarks: "We have become accustomed to the idea that the career of an individual spans only one major technological phase: it is almost certain in the future that it will span two or even more such phases".[***] Manifestly, industry cannot release all the people all the time to attend updating or refresher courses, and the University will be able to make a very special contribution through its combined services of broadcasting, correspondence courses, and residential short courses. It is intended that these courses should be developed from the outset, and that the scope should be widened to include courses for professions, which, as in commerce, though not themselves scientific or technological, are nevertheless increasingly subject to the impact of technological innovation.

---

[*] Universities Central Council on Admissions: Fifth Report, 1966-67.

[**] The Flow into Employment of Scientists, Engineers and Technologists - Report of the Working Group on Manpower for Scientific Growth, under the chairmanship of Professor Michael Swann; Command 3760, H.M.S.O. 1968.

[***] Page 73, paragraph 149.

96. Besides the necessity to keep abreast of modern developments within particular occupations, it is increasingly important to facilitate movement between occupations and movement upwards through the occupational structure, as from specialist activity to general management. "Post experience courses" and "conversion courses" will be required of appropriate frequency and duration, which may lead by "credit" stages (possibly sufficient in themselves) to postgraduate qualifications - degrees, diplomas and certificates. In the design of updating, refresher courses, and of occupational conversion courses, the University will wish to take expert advice from those engaged in industry, commerce and relevant professions.

97. Change in social and economic circumstances, and in personal outlook at a more mature age, will stimulate others to take courses of study. This may be purely for personal satisfaction or for new occupational opportunities as, for example, for married women whose families are growing up. With earlier marriage and smaller families, this has been until lately a much neglected educational opportunity. This is indeed one aspect only of a much wider problem, and the national statistics of further and higher education show how markedly educational opportunities have been and are currently denied to women as compared with men, and with this, occupational opportunities also. The University will have an unrivalled opportunity to rectify this long-continuing imbalance.

98. In summary, therefore, the objects of the Open University are to provide opportunities, at both undergraduate and postgraduate level, of higher education to all those who, for any reason, have been or are being precluded from achieving their aims through an existing institution of higher education. This does not imply competition with existing institutions, but rather an attempt on a national scale to complement their efforts; an attempt which may well increase the demands upon existing institutions, as students, stimulated by the experience of part-time study, increasingly come to want the opportunity for full-time study.

III. GENERAL APPROACH TO OPEN UNIVERSITY EDUCATION

19. It is no longer necessary to argue that the broadcasting media, when imaginatively used, are efficient means of instruction, since that has now been established by an adequate body of research. So far as teaching of university level is concerned, the findings of research have been amply confirmed by the experience of the universities making large-scale use of closed-circuit television in their internal teaching.

20. The Hale Report* makes it clear that the "lecture" or other group teaching method, rather than the seminar or tutorial class, is still quantitatively the principal mode of university teaching. Given its logistic advantages, it is seen as the simplest way of offering to the first-year student a broad and up-to-date compendium of some field of knowledge and, at its best, of motivating a survey of new knowledge, problems and growing points. The broadcast programme has even greater economies of scale; it will be more elaborate and carefully prepared; it can employ the best academic talent; and present detail in a manner most lectures cannot. On balance it is likely to achieve the results at least as good as and often better than those secured by the normal live lecture in the classroom. Once the validity of broadcasting as a means of teaching is accepted, it is possible to think in terms of drawing on a nation-wide pool of specialised teaching abilities and of providing teaching programmes available to all that exploit the unique qualities and economies of scale that characterise the broadcasting media.

21. Direct teaching by broadcasting supported by printed literature may provide all that is required for a short course of professional refreshment. It is, however, neither practically possible nor pedagogically sound to rely on broadcasting as the principal or exclusive means of instruction in an operation designed to provide disciplined courses of university level.

22. The serious student needs to make the facts and concepts that have been presented to him his own by using them. He must undertake regular written work, some of which may be self-instructional and self-correcting, some of which must be corrected so as to help him with his individual problems and errors and to permit assessment of his progress. The only method of individual instruction capable of being made available everywhere, and capable of indefinite expansion as new needs arise, is correspondence tuition, which can readily incorporate these newer techniques. It is already used in Russia as a main agent of university expansion, nearly half of all Russian students in higher education follow correspondence courses under the supervision of local institutions of higher education.

23. In Japan, in Australia, and in other countries faced with the problem of distant and isolated communities, correspondence tuition has been developed within the context of the national system of education, and at all levels. In this country it has,

---

* University Teaching Methods. Report of the Committee under the chairmanship of Sir Edward Hale. H.M.S.O. 1964. (Page 52, paragraphs 165 et seq.)

in the main, been left to private enterprise, and perhaps as many as half a million students are enrolled with one or other of the fifty to sixty colleges - many of them very small - which are now operating. They include a very substantial number of students for the external degrees of the University of London; and a much larger number aiming at professional qualifications. In one instance only does London University itself undertake correspondence teaching, preparing students for the B.Sc. (Econ.) through the activities of its Commerce Degree Bureau. At least half of the external students for that degree are receiving correspondence tuition from the Bureau or from some other source.

24. With these facts in mind the Robbins Committee on higher education felt able to make the specific recommendation that British universities should experiment with correspondence courses, supplemented by vacation courses and laboratory work where appropriate; they added the following rider: "We think it likely that television, as a technique of educational communication, may be found to have considerable potential value as an ancillary both for part-time and correspondence study*".

25. Broadcasting, then, can most effectively be used as a component part of a fully integrated teaching system which also makes use of printed material, including specially written textbooks and directions for further reading; of correspondence tuition; of part-time face-to-face teaching, and of group discussion. In the circumstances it has very obvious potentialities, viz.:

a) Using its full range of resources it can make the initial presentation of topics with the maximum impact. It can make the best authorities and the best expositors universally available, and it can thereby serve as an incomparably rapid means for the diffusion of the newest knowledge and ideas.

b) Although they must be designed with a single-minded concern for the enrolled student audience, many of the programmes may have a cultural value for a much larger body of viewers and listeners , an important consideration in the use of an expensive medium like television.

c) It can allow men and women to sample the broadcast components of a course, and to measure their own capacities against its demands before enrolling as students, and may thereby open up the possibilities of higher education for many people who would not otherwise discover them.

d) It can provide an incentive to reduce the "fall-out" rate, which is high in many forms of adult education.

---

* Robbins Report, page 262, paragraph 821.

e) For the enrolled student it means a reduction of time spent in travelling and the disruption of family life which might be involved in attendance at more remote courses.

f) To some extent it can help students to feel that they are members of a corporate body, and in touch with its teaching staff.

26. The broadcasting contribution should not be regarded merely as programmes which reproduce (though they may replace) conventional lectures. It should use and experiment with the full and highly flexible resources of the media, with a strict attention to the purpose in hand. For serious students the most that should be common to all modes of teaching: a clear definition of aims; accuracy of focus in terms of audience level; lucidity, cogency, and firmness of structure; a proper judgement of pace, and relevant illustration.

27. Articulated teaching systems of this type have so far received their fullest development at levels below that of university teaching. Some of these combined operations have, indeed, much more significance for the future of higher education than those widespread forms of broadcasting which may use the label "university", but which consist essentially of programmes of a high cultural standard calling for no long-sustained effort, integrated with no other modes of teaching, and leading to no qualifications.

28. In this field the Japanese public service broadcasting organisation, Nippon Hoso Kyokai, has one solid and remarkable achievement to its credit. For many years N.H.K. had been supporting the work of the established Correspondence High Schools, the purpose of which is to enable young people who cannot otherwise continue their secondary education beyond the compulsory school leaving age to obtain the Upper Secondary School leaving certificate. In 1963 it established a national Correspondence High School of its own, working in partnership with Senior High Schools throughout the country, which provide the statutory minimum of face-to-face teaching, amounting for those who follow the comprehensive radio and television courses to eight days a year. By 1967, 17,000 students from all over the country were registered with the school, and 101 teachers, together with an office staff of 65, were engaged in the work. Thirty-five hours of broadcasting time in each week were devoted to the various subjects of the four-year course, and with their help reinforcing that of the correspondence tuition, the first 2,000 students had successfully taken their final examinations.

29. In Europe a basically similar venture of more recent origin, the Munich "Telekolleg", is orientated towards the needs of men and women who lack the secondary school qualification which would enable them to proceed to higher education of a vocational or technical kind. It therefore follows the syllabus adopted throughout the German Federal Republic for the advanced part-time vocational schools which provide an alternative route to higher education for the early school leaver, and prepares its students for the same examination. It is the central aim

of the scheme to ensure that the three methods of teaching - broadcasting, correspondence tuition, and face-to-face teaching - are closely integrated, and that all three draw upon the experience of programmed methods and incorporate the findings of motivation research and the psychology of learning.

30. At the lower than university level the Chicago Board of Education has for more than ten years been offering on television the whole curriculum of its City Junior College. Enrolled students for "credit" courses (who must satisfy the same admission requirements as full-time students) are allotted to "section teachers", each of whom is in immediate charge of a group of students. The section teacher not only marks written work and assigns grades, he also makes himself available to students at conferences and during scheduled weekly telephone conference hours. These highly motivated "credit" students, most of them women and half of them teachers, have achieved examination results which fully stand comparison with those achieved by students on the campus. At present the annual intake is some ten thousand strong; and for each broadcast course there is an unregistered audience ranging from 10,000 to 40,000 viewers. Similarly, at the New Zealand Technical Correspondence Institute in Wellington, some 11,000 students are taught each year by correspondence tuition in a wide variety of courses, some few of which are of university standard. The Institute employs full-time tutors only and has a remarkable record of success.

31. In Australia, the University of New South Wales in Sydney operates at the other end of the university spectrum. Already a provider of correspondence courses, it has set up a "Radio University" in its division of postgraduate and extension studies. Postgraduate credit courses (including, for example, a course leading to the graduate diploma in industrial engineering) are offered by radio and television, with associated seminars and laboratory courses" to help potential university entrants, and refresher courses for teachers, doctors and engineers. It is characteristic of the Australian approach, conditioned by a country of great distances, that the radio component of these courses is made available also in tape-recorded form.

32. From all of these enterprises there are organisational as well as pedagogic lessons to be learnt. They can be supplemented from the experimental experience of many other countries. Since 1947 the Sorbonne, which has always admitted the general public to some of its lectures, has been providing some thirty-five one-hour lectures each week for listeners to "Radio Sorbonne". The English Faculty has taken the further steps of accepting up to two hundred students for courses using radio and correspondence tuition, and significantly, the students have begun to make their own recordings of the broadcasts. A more comprehensive combined service is provided by the Ministry of Education for the pre-university student, and its work for those who cannot undertake full-time attendance at an educational institution is continued by the universities themselves. In 1963 a number of them were persuaded by the Ministry to make

a new contribution to the expansion of higher education through a scheme to be operated by regional groupings of provincial universities, and designed to provide through "combined operations" a new approach to the examination covering the two years of university general studies which link the achievement of the baccalaureat with the start of degree studies proper. The scheme encountered a widespread scepticism firmly wedded to traditional university proprieties and procedures. It is a witness to the strength of the new method that the scheme has come to be happily accepted, and has steadily expanded.

33. In Poland the state broadcasting organisation and the Ministry of Education, supported by UNESCO, have launched a scheme designed to cover the first two years of engineering studies at university level, placing considerable emphasis on group viewing and discussion. Japan has entered the university field with programmes designed to support the work of the numerous universities which already offer correspondence courses.

34. In this country, too, there have been significant developments. The Department of Adult Education of the University of Nottingham has mounted an experimental course in economics on a regional basis with Associated Television. The National Extension College, working in partnership with the B.B.C. and with independent television, has embarked on a continuing offer of "O" and "A" level courses in English and physics. In addition to these ventures in the joint use of correspondence teaching and broadcasting there has been an advance on two fronts in the use of radio and television as instruments of higher education. On the one hand there has been a rapidly growing recognition in the universities of the value of closed-circuit television; on the other, a determined entry into the field of advanced and specialised studies both by the B.B.C. and by the independent programme companies. Both agencies are engaged in high-level "refresher" courses for professional men, for example doctors, where both have found large audiences for contributors of the highest distinction. Again both have similar experience in relation to serving teachers, industrial managers and engineers. All these activities have involved the application of skills deriving from advances in the science of teaching as well as in the art of broadcasting to the evolution of new, imaginative, but relevant programme forms for educational broadcasts. None of the foregoing, however, lead to higher qualifications, whether certificates or diplomas.

35. Teaching operations drawing on different media but using a "systems approach", with the learner as the key figure, are thus coming to play an important part in the strategy of many of the nations which are foremost in the present world-wide expansion of educational opportunity.

36. In drawing up our plan for the Open University we have been much influenced by these considerations and we have endeavored to plan an organisation which will allow of the rapid development of such an integrated "systems approach" to the problem of providing higher education for part-time students to meet the needs we have outlined in paragraphs 6-18.

IV. THE CHARTER AND STATUTES OF THE OPEN UNIVERSITY

37. Under its Charter the Open University will be, as are all other universities, an independent, autonomous institution. The charters and statutes of the more recently established universities contain much common material and a similar pattern was used for drafting the Charter of the Open University, changes being introduced only when they were made necessary by the unique nature and structure of the University. Thus two statutory organisations of the University are set up with executive power, namely the Council and the Senate, and the powers of each are delineated by the Charter.

38. In the composition of the Council and the Senate there are, however, considerable variations from the usual arrangements. These have been introduced to reflect the regional organisation of the Open University and to allow of a direct influence by the regions on the control of the policy of the Open University. The General Assembly, representative of both staff and students, is itself regionalised, so that it exercises its elective powers to the Council and the Senate through Regional Assemblies. In a similar way appropriate means whereby students can be consulted by the Council and the Senate can be developed in the regions.

39. The Council will have members nominated by the Privy Council, the B.B.C. and the Royal Society, together with internal members appointed by the Senate. A novel feature will be the representation of both sectors of higher education, the "university sector", through members nominated by the Committee of Vice-Chancellors and Principals, and the "public sector", through members nominated by the various bodies, in consultation, who are representative of the local education authorities. Eight places on the Council will be filled by co-option, which will allow flexibility in ensuring that persons of special experience will serve on the Council from time to time. The composition of the Senate provides for representation of both the full-time academic staff and the part-time tutorial staff; and also allows of the representation of the educational technologists who will play a vital role in the development of the systems-based teaching courses.

40. In view of the essential novelty of the Open University as an institution, a definitive structure frequently is not imposed by the Charter, but instead powers are taken for the Council and the Senate to determine the particular structure as the need arises, thus allowing a large measure of flexibility within which an effective administrative pattern can emerge.

41. The draft Charter has now been submitted by the Secretary of State for Education and Science on behalf of the Planning Committee to the Privy Council and will be available for public inspection. We have not therefore thought it necessary in this Report to go into further detail about its provisions.

42. We hope that the Charter can be awarded by 1st April, 1969, so that the University can, from the beginning of the next financial year, begin to operate under the direction of its Council and Senate; and so that we, as the Planning Committee, can withdraw from the scene. The draft Charter provides fully for the period of transition from the authority of the Planning Committee to that of the University itself.

V. ADMINISTRATIVE STRUCTURE AND APPOINTMENTS

43. In determining the administrative structure of the University, we had two objectives; firstly to ensure as far as possible the smooth operation of the new institution and, secondly, to provide for the growth, among the staff and students, of some sense of "belonging" to a real, definable and vital organisation. In an institution which will have staff and students widely dispersed throughout the country, this sense of "belonging" can be fostered only by an administrative structure related to the needs and the problems of the regions. Thus the two objectives are closely interwoven.

44. The whole concept of part-time higher education, of the acquisition of degrees by correspondence courses supplemented by broadcast teaching, was sufficiently revolutionary to have led to considerable scepticism in the academic world and among the lay public. As our investigations and discussions have continued, we have found little basis for such doubts. The evidence as it has accumulated has led us inescapably to the conclusion that the Open University is needed, and can function satisfactorily. To satisfy the need requires that the degrees of the Open University shall stand comparison with those of other universities. We are thus greatly concerned to ensure the quality of the staff and the standing of the graduates.

45. In consequence we were very pleased to appoint, as the first Vice-Chancellor, a man with a wide experience of the established academic world, Professor Walter Perry, O.B.E., M.D., D.Sc., F.R.C.P.(Edin.), F.R.S.E., currently Vice-Principal of the University of Edinburgh. His appointment was announced in June and he will take up his appointment in January 1969, but he is already participating to an increasing extent in our work.

46. We have planned for an organisation in four main sections working under the direction of the Vice-Chancellor. The pattern is illustrated in figure 1.

47. The first of these sections will be the central administrative office under the direction of the Secretary of the University. We have also been glad to appoint Mr. Anastasios Christodoulou, at present Deputy Secretary of the University of Leeds, as our first Secretary. His office will have the primary task of developing systems for student registration and records, for financial accounting and for the servicing of all University business.

48. Secondly there will be the academic departments, staffed by full-time university teachers who will be employed under conditions of service comparable to those which apply in other universities. The full-time academic staff will thus be expected to devote a significant fraction of their time and energy to private study and research so that they can keep pace with the advances in their subjects; and suitable arrangements will be sought to provide them with adequate facilities, both library facilities and, where necessary, laboratory facilities. The

academic departments will be grouped into a number of "lines" of study which correspond roughly with the faculties of the established universities; and each "line" of study will fall under the administrative jurisdiction of a director of studies who will be the counterpart of a full-time dean of a faculty. These academic directors of studies will thus be the Vice-Chancellor's senior academic colleagues, and some appointments have already been made.

49. Since the teaching methods of the Open University will necessarily differ radically from those in use in other universities, we have planned for a third group of administrative staff parellel to the main group of academic staff. Our aim was to provide the necessary expertise in the educational technologies associated with specialised course design, with correspondence tuition, with radio and television broadcasting, with the special problems of adult education, and with the problems of programmed learning and of the assessment of student performance. To meet these needs we have appointed a Director of Studies, Home Tuition and Correspondence Services, and a Director of Studies, Local Centres and Tutorial Services. We have used the same general title, namely director of studies, as that used for the senior academic appointments since we wished to emphasise that both groups would, in equal measure, have a part to play in the development of courses.

50. Special circumstances obtain in respect of broadcast services. We decided to contract with the B.B.C. for all production as well as transmission services, certainly during the early years of operation. This arrangement will, in the initial phase, provide the University with a high standard of production skill. The detailed arrangements made with the B.B.C. are described in Chapter VIII.

51. The fourth and last administrative section of the University will provide the link between the central office and the regions. It will be organised primarily by the Director of Studies, Local Centres and Tutorial Services. He will have the assistance of regional directors each of whom will be responsible, within his region, for the recruitment and supervision, in concert with the full-time academic staff, of a corps of part-time tutors, for the arrangement of residential vacation courses and seminars, for the development of a student counselling service, and for the establishment of local viewing centres. Because of the range of choices inherent in the degree pattern, the "open-ness" of the University, and the possibility that many students may wish to enrol who are not at a stage when they could profitably pursue degree studies, we consider the development of the counselling service to be of particular importance. It will, together with the preparatory courses which we hope to see developed (paragraph 92), and the screening effect of the University's foundation courses (paragraph 59) be the means by which the University can reduce to a minimum the number of students who embark upon courses only to find that they cannot continue with them. The regional directors will also have to arrange for the convening of meetings of the regional staff and students so that the regions can exert their

elective powers to the Council and the Senate of the University and have the opportunity of contributing to its policy and its progress. Furthermore, regional directors will play a vital role in developing close co-operation with many interests of various kinds, including the local authorities and their institutions, and with university extra-mural departments. It will be upon the success of the regional directors that the corporate spirit of the University will largely depend.

52. The principle of the Open University is a major innovation in education; so must be its practice. The problems of any educational institution, of maintaining interest and of ensuring optimal learning conditions, are more acute for the Open University - in the students it teaches, in the amount of personal contact between student and staff and in the multi-media system of instruction it will use. New methods of teaching are required to sustain home-based students in their work, and it must apply new techniques of assessing and guiding their work. Many of these methods and techniques arise from recent advances in the psychology of learning and educational technology. These permit the systematic design of courses, the production of effective learning sequences, the creation of appropriate materials, the use of various media to present them, the continuous assessment of student performance as parts of an integrated educational process, based upon a systems-analysis approach to learning. New techniques of communication, information and instructional analysis are now available to educators, and these promise to be of special and growing relevance to the Open University in the design and central production of course materials based largely on self-instructional techniques. We propose, therefore, that an operational research unit of the University be established as an early priority in order to undertake the necessary studies. Indeed the continuation, as an integral feature of the University, of experimental work particularly in relation to the learning process may eventually prove to be one of the University's distinctive contributions to education generally.

53. The University will be faced with the production, probably on a large scale, of prepared study material for its correspondence courses, as well as of a range of handbooks, guides, brochures and forms. It will therefore be appropriate for the University to set up its own publications department.

VI. DEGREE STRUCTURE AND COURSES

54. We described in paragraphs 6-18 the objects of the University, and showed the clear need for both undergraduate and postgraduate courses. With limited broadcasting facilities we considered that the first priority should be the provision of undergraduate courses, but we felt that some postgraduate courses might be necessary from the outset and we discuss this matter in paragraphs 68 to 70.

Degree Structure

55. The degree of the Open University should, we considered, be a "general degree" in the sense that it would embrace studies over a range of subjects rather than be confined to a single narrow speciality. In our view the Open University should not set out to compete with the established universities which can so much more efficiently provide "special" degrees for students who can spend three years of full-time study in the laboratories and libraries of their specialist schools. Rather should the Open University degree be complementary, providing for the part-time student a broadly based higher education, for which the teaching techniques available to the Open University are particularly suited. Furthermore we were aware of the great need and demand in the country, emphasised in the Swann Report,* for an extension of facilities for such general degrees.

56. Students increasingly complain that over the years degree course structures have become too rigid. We have therefore sought to evolve a degree structure that would be as flexible as possible, allowing students a reasonable maximum choice from among courses offered.

57. The majority of the students of the Open University are likely to be drawn from those whose school education ended a varying number of years ago and at varying levels of attainment. We took it as axiomatic that no formal academic qualifications would be required for registration as a student. Anyone could try his or her hand, and only failure to progress adequately would be a bar to continuation of studies. The first year courses must therefore be designed to suit, as far as possible, a wide variety of preparative backgrounds. This led to the concept of "foundation courses".

58. The foundation courses are to be designed as a means of familiarising mature students with the modern concepts of the main "lines" of study.
Thus foundation courses will be offered in

a) Mathematics.
b) Understanding Science.
c) Literature and Culture.
d) Understanding Society.

---

* Swann Report, paragraphs 165-169, and paragraph 14 in Summary of Recommendations (page 92).

The initial challenge that faces the academic staff is so to devise these courses that the whole of a broad field is explored in a way that will stimulate and excite students with very varied backgrounds; but that will, at the same time, make intellectual demands upon them of the same order as the demands made by any normal first-year university course.

59. The degree of the Open University will be obtained by the accumulation of "credits" in individual courses, which will last for one academic year. A certificate indicating the acquisition of a credit will be issued to students who are successful in both the continuous and the final assessments of their work. Each foundation course will count as one credit and all students will normally be required to obtain two credits in foundation courses before proceeding to further study.

60. The programme of study after the foundation courses is based on the breakdown of each line into a number of components. Thus mathematics might be broken down into statistics, computer science, pure mathematics and so on. The number of such components will initially be limited by the availability of broadcasting time to about four in each line. Each component will be made the subject of two courses, each of one year's duration and each counting as a credit. Students could not study the second, more advanced course in any subject unless they had obtained a credit in the first course in that subject. With this exception it is intended that students should be as free as possible to choose any combination of courses from any lines that they wish. Thus one student might draw all his courses (save one foundation course) from the line of mathematics where another drew his from all the four (or later, five) lines of the University.

61. We propose that the degree should be awarded at two levels. All degrees should be "general" in type, although a varying measure of specialisation will be possible. We are aware that in some established universities an "honours" degree is regarded as synonymous with a "special" degree, and a "pass" degree or "ordinary" degree as synonymous with a "general" degree. In other universities this pattern has been abandoned and degrees are now offered which are both "general" and "honours". There is thus considerable semantic difficulty in the terminology. We considered the use of a completely new terminology, but decided that this would merely serve to confuse still further an already confused situation. The Open University should therefore offer its general degrees both at ordinary and at honours levels. For the ordinary degree a total of six credits will be required; for the honours degree eight credits will be needed and there may be some restriction on the choice of the last two courses in which credits are obtained. We have not, however, taken the argument further than this as it is a matter on which the Senate is bound to have its own views.

62. Credits may be acquired over any number of years of study. Exceptional students could complete a degree course in three years, but we imagine that four years would be the normal time and five years the median period in practice.

63. The determination of the success of each student leading to a credit will be by a combination of continuous assessment and final examination. The latter will be an essential feature, despite its limitations, since only at that stage can standards be unequivocally established. In accordance with university practice, external examiners will be appointed for the final examinations of each course to ensure that proper academic standards are maintained.

64. One vital and pressing need is for degree courses for practising certificated teachers. We have been engaged in detailed discussions of this problem with representatives of the professional bodies and we hope to arrive at an early decision on this particular problem.

Course Structure

65. Each degree course will make substantial use of correspondence course techniques which will provide the nucleus around which an integrated sequence of radio and television programmes, of discussion groups and of short residential courses can be built. The broadcasts will not necessarily form a coherent course of themselves, though there may be good grounds for offering "study guides" and reading lists for sale. Thus members of the general public, who are not registered students, will be free to watch or listen to the broadcast programmes, and they may get considerable satisfaction and value from the series of broadcasts. It must, however, be affirmed as policy that the interests of the registered students are paramount, and that the broadcasts will be designed and produced primarily for their benefit as part of the integrated teaching/learning system of the University.

66. Each correspondence course will be based upon "assignments" sent by post to each student in a form and at intervals to be determined. Initially, an assignment will comprise at least a study guide, references to the reading required, a programme of the related broadcast material, and requirements for written work to be submitted to the tutor. One of the main advantages of the normal correspondence course is the flexibility of timing that it allows; however, this flexibility is not available with the broadcast element of the course. Thus, to the extent that assignments are linked to the broadcasts, students must keep abreast of them or fall behind. This will remain inherent in the integrated course structure, until such time as recording machines for the television broadcasts become readily available and reasonably inexpensive. The same difficulty is less serious with sound broadcasts since audio tape-recorders are now cheap and familiar, and since recordings on tape or disc can easily be offered for sale or on loan, once the right to do so has been negotiated. The technical development of recording devices is already very promising, and the University will give this close attention so that the work of students can be facilitated.

67. We have discussed the feasibility of permitting students to begin their studies at any time of the year. This is another

attractive feature of many correspondence courses, but we regard it as impracticable in the immediate future for the fully integrated courses. Thus, initially, courses will run from January to December. There are several reasons for this choice, which departs from the traditional academic year beginning in October, namely:

a) courses may run for up to forty weeks of broadcasting and for a similar number of weeks of correspondence each year. Thus any break in the summer would tend to fall in the middle of a course and offer a chance for wider reading, revision and catching up;

b) short-term residential courses would mainly fall midway through the course. They will depend upon the use of existing accommodation in other universities and educational institutions, and such accommodation is often available only during the summer months;

c) examinations would be held in November or December. This is "off-peak" time for both school and university examinations, so that both space and personnel should be more readily available;

d) because of the complex regional organisation of the Open University a period of some months will be needed between the registration of students and the start of the courses. Registration in September for courses beginning in January would provide the University with the interval for preparation and organisation that is required, and the student with an opportunity for consulting the student counselling service about background reading in preparation for his course.

Postgraduate Courses

68. We differentiate postgraduate courses into three main types. There is, first, the "postgraduation" course that follows immediatly after a first degree. This can, and often does, lead to a higher degree or diploma and may re-orient a student from one discipline to another in preparation for employment. Secondly there is the "postgraduate post-experience" course, which may be of two kinds. First the courses which are required by those who, after practising their profession for some years, are called upon to make a significant change in their activities, such as from the scientific into the management side of industry. Secondly, there are "updating" or "refresher" courses which enable a professional man to keep up with recent advances in his own field of work, whether scientific, technological or managerial.

69. The University may ultimately offer courses of all these kinds, but following our discussions with a variety of professional organisations, we believe that the critical need is for both kinds of post-experience courses and these will be considered from the outset.

70. In very general terms we think that these postgraduate courses may depend mainly on a nucleus of a series of broadcasts, but that correspondence tuition may be essential in preparation for some advanced diplomas and higher degrees, where these are offered by the University. The extent to which the University can embark upon such courses in the early years will therefore depend upon the availability of broadcasting time at suitable hours of the day.

VII. ACADEMIC STAFFING

71. Our present judgment is that there will be some 16 to 20 component subjects in the various "lines" of study. The difference in the course structure and teaching methods between the Open University and existing universities, and the emphasis on new and inter-disciplinary subjects makes it probable that the academic staff will work mainly on a flexible project basis, especially in the early years. On a reasonable estimate four full-time academic staff will be needed to provide, service and revise the courses in each component subject. They would be able to devote a significant proportion of their time to private study and research, and essential crossfertilisation of ideas and discussion with colleagues would be facilitated. It is likely that the initial full-time staff will be small in number and thus readily recruited through normal channels. It will, in addition, be necessary to recruit academic specialists on a part-time, consultancy or short-term secondment pattern, to assist in the development of teaching and learning materials which will be an essential component of the various courses. In this way, special skills can be gathered by the University for its needs without making permanent appointments which could create an inflexible structure. This pattern of temporary employment will be particularly necessary in the early years of development.

72. The pattern of recruitment of part-time tutors in the regions is likely to be very different from that obtaining centrally. There may be a number of suitable tutors for the correspondence courses to be found in the ranks of the housewives prevented by the demands of young families from undertaking employment; or from amongst those who from physical incapacity are precluded from full-time employment. But the main supply of tutors must come from the staffs of universities, polytechnics, colleges of education, technical colleges and other educational establishments. We are discussing the arrangements under which they might engage on part-time work for the Open University with the various interested parties. Their main function will be twofold; to deal with students' written work, and to guide and counsel them about their studies and progress. The number and the quality of its part-time tutors will be a matter of continuing concern to the University, as the supply may prove to be a limiting factor in determining the progress of its work. As far as possible there should be face-to-face as well as postal contact between the student and the tutor. We recognise the great advantage that can accrue from face-to-face meetings, which will be provided for by the short summer residential courses proposed, and will also be encouraged, where resources and facilities allow, at study and viewing centres.

VIII. RELATIONSHIPS WITH THE BRITISH BROADCASTING CORPORATION

73. As we mentioned in Chapter V, para. 50, we decided to contract with the B.B.C. to provide, in the initial years of operation, all the production and transmission services of the University.

74. In consequence we asked the B.B.C. to provide a total of thirty hours per week of television broadcasting and an equal total of radio broadcasting,these totals to be reached in the third year of the University's operation, i.e. in 1973. The B.B.C. has agreed to meet this request for time, although possibly building up more gradually so as to reach the same total by 1974. The detailed times of broadcasting have not yet been finally determined but there is a broad measure of agreement in principle. The most important feature is that the initial television broadcasts will be on B.B.C.2 between 5.30 and 7.30 p.m. on weekday evenings, and during the day at weekends. It is expected that B.B.C.2 programmes will be obtainable by 80 per cent of the population of the United Kingdom by January 1971. The remaining fifth of the population will be unable to receive directly the television broadcasts of the University. We recommend that the University should make every endeavour to meet the needs of this minority by making available, through whatever means should prove possible, recordings of the broadcast material.

75. The B.B.C. has been able to meet our request for radio broadcasting time only by dividing one or another of its networks which is normally distributed on both the medium-wave band and on V.H.F. This effectively produces a Radio 5 network at certain times of day. The University programmes will be broadcast on the V.H.F. network. By January 1971 over 99 per cent of the population of the United Kingdom will be able to receive these V.H.F. broadcasts. Despite the excellent coverage this solution is regarded by the B.B.C. as unsatisfactory and necessarily temporary, since a wide range of minority interests is served by both wave-bands and these interests cannot be permanently deprived. Furthermore, a new European Conference on wavelength allocations is scheduled for the mid 1970's, and thereafter the University's share of radio broadcasting time cannot be guaranteed.

76. Thus the long-term needs of the University, as well as the difficulties facing the B.B.C., persuaded us that the University should look to the provision of a separate radio network as the permanent answer to the problem. To possess, or to command a substantial share of a V.H.F. radio network would enable the University to broadcast many more programmes by radio than it could by television for the same cost, and at times of its own choosing. We have therefore presented a submission for the allocation of such a network at the earliest possible date.

77. Although the television broadcasting time available on B.B.C.2 is adequate for the University's purposes in the short

term, there can be no permanent guarantee that this will always be true. We have not considered it proper at this early stage to make any case for extended television facilities by the allocation of all or a substantial part of the fourth television network to the University, but we are pleased to note the undertaking in the 1966 White Paper on broadcasting policy[*] that the Government will take account of the needs of the Open University in determining the use of the fourth television network in due course.

78. During 1968 the B.B.C. had to decide whether or not to renew the lease of its premises at Alexandra Palace. It had no wish to retain them except as a possible production centre for the University. For this purpose the premises offered the great advantage of concentrating television production facilities for the University's programmes in the one place. This would certainly be more economic and efficient than the only alternative, which would have been to rely on the use of other existing production centres, fitting in where time and opportunity allowed, and with no security of tenure. We have therefore asked the B.B.C. to retain these premises on behalf of the University.

79. The relationship between the University and the B.B.C. will be one of educational partnership, based on mutual confidence. This confidence will stem from a clear understanding on both sides of the rights and responsibilities of each, and a joint statement of the understanding has been prepared (Appendix I). The basic principles behind it are that the University has the ultimate responsibility for the academic content of course material and the manner in which this material is taught, whilst respecting the B.B.C.'s judgment and expert advice on matters relating to the preparation and presentation of the broadcasts. This advice will not be set aside for any but cogent academic reasons.

80. The B.B.C. advises that under the copyright law the ownership of the programme material produced on behalf of the University will rest with the B.B.C., although such ownership can be assigned by it to the University. We are satisfied that the ownership and rights in this material should belong to the University and have asked the Corporation to take what steps are legally necessary to ensure this.

81. A related and more complex question is that of copyright and performers' rights in the material used in the broadcast. We envisage that there will be, in the longer term particularly but to some extent also from the beginning, much scope for the secondary use of broadcast material. Such use may be by the University itself or by other educational institutions, and may be in the form of recordings of broadcasts or excerpts from them, or in the reproduction of the material in other formats altogether, including print. The University will have no legal right to undertake or authorise such secondary uses, except insofar as it has foreseen the need for them and has

---

[*] Broadcasting (Command 3169).

taken such rights in its contractual negotiations with performers and holders of copyright. Consideration is being given, in consultation with the B.B.C. to the possible rights which the University ought to take in entering into contractual arrangements, and the possible exploitation of the University's courses overseas and at home is being borne in mind.

82. The programmes produced will use a range of resources similar to that employed for existing B.B.C. further education programmes. The amount of broadcasting for any course and the balance of use between radio and television will be determined in relation to the needs of that course, as its preparation proceeds. Similarly, the length of programmes may vary, and will be decided on the basis of academic considerations; twenty and thirty-minute programmes are thought most likely.

83. The four foundation courses will be transmitted every year in order to ensure for students the necessary lead-in to their further degree study. Other courses will be offered as often as broadcasting time allows, but any component courses required to be taken in sequence for degree purposes will be broadcast more frequently than others that are not so required.

84. Each programme will be repeated at a different time of day within a reasonable time of the original transmission. Once made each programme will, on average, be re-transmitted for two further years after the year of initiation. It will probably then be re-made; i.e. the foundation courses will be re-made for transmission in 1974.

85. In addition to the curriculum output, about twenty programmes will be devoted annually to advising students about their problems, the techniques of being a student, and the general intellectual climate of study. These will be quite separate programmes, and may involve students themselves. These programmes also will be repeated within a reasonable time, but will not generally be re-transmitted in subsequent years; i.e. they will be re-made each year.

86. Agreement in principle has been reached with the B.B.C. on the estimated cost of meeting this programme of broadcasting over the next five years. This enables the B.B.C. to engage the staff required to provide these programmes.

87. We have also discussed the possible use of closed-circuit television in the work of the University. There are already a number of educational closed-circuit television units in this country and, in co-operation with them, the University could clearly experiment in methods of production of programmes. In so doing the staff of the University would obtain valuable experience and training in the use of this medium. Furthermore, it might well prove possible to test the effect of experimental programmes by limited transmission on a closed-circuit to a selected audience. We commend such experiments to the University staff.

88. Throughout our negotiations with the B.B.C. we have been greatly impressed with the interest and enthusiasm of its educational broadcasting staff and by the co-operation and courtesy of all those officers with whom we have had dealings. We wish to pay tribute to the Director-General and his staff for the way in which they have, on all occasions, met our needs often at considerable inconvenience and trouble to themselves. We are very grateful for this encouragement from the start, as in our view a successful partnership between our two organisations is crucial to the success of the broadcast component of the University's activities.

IX. RELATIONSHIPS WITH OTHER ORGANISATIONS

89. Because of its very nature, the scope, the scale and distribution of its activities, the University will need to establish close relationships with many educational and other bodies if it is to succeed. Outstanding among these will be the existing agencies of higher, further and adult education. The relationships will vary widely, ranging from regular meetings for the discussion of objectives and plans, to specific agreements covering practical working partnerships. Substantial problems there will certainly be, for such co-operation implies the need to expend money, and these are not propitious times in which to seek even modest sums for new developments. Nevertheless, we have been encouraged by the discussions which the Ways and Means Group have been holding with bodies representing various educational interests at national level, to believe that there is a fund of goodwill and preparedness to help the development and operation of the new University in the regions, despite the great difficulties. The University will not start to operate until the early 1970s when it is reasonable to hope that the cold wind of economy will be blowing less harshly if at all.

90. The unique partnership with the B.B.C. has already been discussed, and is central rather than regional. In the regions, a basic need will be to relate with the work of the university extra-mural departments and of other agencies of adult education, such as the W.E.A. and the residential colleges; the technical and other further education colleges, involving relationships with the local education authorities and the governing bodies, will also be very important. Our meetings, which are still continuing, have so far included representatives of the Association of Technical Institutions, the Association of Principals of Technical Institutions, the Association of Teachers in Technical Institutions, the adult education Residential Colleges and Short-Term Residential Colleges, permanent officials and elected representatives of the local authorities, and the Confederation of British Industry. We also talked to representatives of the Library Association and of various correspondence colleges quite early in our deliberations. Within the theme of mutual co-operation, we discussed with them (wherever relevant) the possible use of premises for study or viewing centres, for laboratory or other practical work, or for short residential courses; also of course the associated questions of staffing, for example the extent to which their staff might be prepared and be allowed to take on Open University responsibilities in addition to their existing commitments, particularly in relation to the student counselling and tutorial services. The need to develop a network of related and preparatory courses in existing institutions, the possibilities of relating courses already offered by them to those of the University, possibly for credit purposes, and of making the University's component degree courses available to such institutions were also discussed.

91. Many problems and issues remain unresolved, and indeed can only be dealt with at local and regional level. They will require a full discussion with those concerned of the issues and practi-

cal realities involved. We shall in the intervening period before the granting of the Charter be continuing to arrange discussions with other important bodies, such as the Trades Union Congress, the Central Training Council, the Standing Conference of Regional Advisory Councils for Further Education, the British Institute of Management, and other professional bodies. The University will surely wish to establish continuing working relationships, very many of which may prove to be mutually advantageous.

Preparatory Courses

92. We mentioned above the need to develop a network of preparatory courses in existing institutions. This is a matter which we regard as of major importance although it falls outside the immediate scope of the work of the University itself. There should, however, be continued support and encouragement from the University for any organised course of this kind as there will clearly be many potential students who require a preliminary introduction or re-introduction to the academic topics to be covered in the foundation courses. We were particularly pleased to be able to lend support to the project, organised jointly by the B.B.C. and the National Extension College, for the provision of three such preparatory courses in mathematics, science, and the arts during 1970; the courses will use in varying degree correspondence, television, and radio broadcasts. We have also taken the opportunity to initiate a research project to be organised in collaboration with the B.B.C. and the N.E.C. on the impact and effectiveness of these courses.

8. PREMISES AND EQUIPMENT

Premises

93. The Planning Committee is presently housed in office premises at 38 Belgrave Square, but these will certainly become inadequate for the rapidly expanding staff of the University before 1970. We are now seeking a permanent home for the University, outside but within easy reach of London, on a site suitable for the expansion of the available premises if this becomes necessary.

94. The reasons for this choice of a site in the home counties are, firstly, the necessity for maintaining close contact with B.B.C. headquarters offices and with the studios for the University at Alexandra Palace, and, secondly, the need for easy access to transport to all the regional centres in the country. These reasons override all other considerations in determining the site of the University.

95. The urgency of the need for space precludes the possibility of building premises designed for the purpose, and this indicates a large house which can readily be adapted to the immediate needs of the University. When additional office buildings are erected, the residential space in the main house will be available for holding short residential meetings, including some for part-time staff from the regions.

96. We have mentioned already the arrangements made with the B.B.C. for the provision of television studio space for the Open University by extending the lease of Alexandra Palace. Premises for radio production will be made available by the B.B.C. from their existing resources.

97. The regions of the Open University will require, initially, only limited office accommodation for the regional directors. This will be most advantageous if acquired in close proximity to, and possibly by lease from, existing educational institutions.

98. The setting up of viewing centres will be an essential development. The ultimate location of each centre must depend upon knowledge of the regional distribution of registered students and this information will not be available until September 1970. Regional directors will meanwhile hold discussions with interested local organisations and will make enquiries about possible locations, so that final arrangements can be completed during the autumn of 1970.

99. Arrangements can be made for library and laboratory facilities for full-time academic staff once the permanent site of the Open University is known. It is hoped thereafter to negotiate for the provision of these facilities with a neighbouring educational or scientific establishment.

Provision of library and of equipment

120. A major need of the University is for the provision of an adequate library for the use of the staff. We have already started to compile the basic requirements of the library and hope to make a start with acquisitions in the near future. Many of the decisions must, however, await the appointment of the senior academic staff.

121. Although students will be expected to buy essential books, there will certainly be a wide variety of background reading for which they will have to depend upon the national library service. The University will need to discuss with appropriate library authorities the way in which certain books can be held in stock in greater quantity than would be required for other purposes.

122. The scale and nature of the operations of the University make it necessary to provide from the outset for the automation of its records. Computer facilities must therefore be regarded as an initial need and discussions as to how best they may be provided are taking place. Furthermore, machinery for the efficient handling, despatch and receipt of assignments will have to be obtained.

123. The B.B.C. estimates cover the cost of equipment, necessary for the production and transmission of the University programmes, which will be acquired by the B.B.C. on behalf of the University. The capital cost will be met by the University as it is incurred.

124. Each viewing centre will require, as its initial equipment, a B.B.C.2 television receiver and a V.H.F. radio receiver. Equipment for replaying recorded tapes of previous radio broadcasts should also be made available so far as is practicable; and, when suitable models become available commercially, equipment for replaying recordings of previous television programmes. Cheapness will be an important factor, not least in the use of video-recording equipment in the viewing centres. However, we have not felt it possible to make any detailed arrangements about the various kinds of necessary equipment. This must await action by the staff of the University. We have merely outlined some of the probable needs.

XI. FINANCE OF THE OPEN UNIVERSITY

105. From the account given of its work, it will be seen that the Open University will have very low investment costs in buildings, a relatively small number of full-time staff, and it will have no full-time students. Moreover, it will have a complex regional organisation and a heavy broadcasting expenditure. In all these respects the University will be very markedly different from existing British universities. In due time the Open University may develop residential courses on a substantial scale beyond its use of the facilities provided by other institutions, and thus require its own accommodation on a commensurate scale. It would then come to resemble the traditional universities more closely. At least for the initial years of development it therefore appeared justifiable to treat the financing of the University as a separate exercise from the distribution of funds through the University Grants Committee. The Department of Education and Science has informed us that Government funds will be provided as a "grant-in-aid" under conditions strictly comparable in most other respects with those obtaining traditionally for British universities.

106. Present uncertainties make it impossible for us accurately to forecast at this stage either the recurrent expenditure or the income of the Open University. There are altogether too many unknowns to allow the determination of an estimate and the best we can do is to list the main items on both sides of the balance sheet.

107. Recurrent expenditure can be divided into two components, one that we call "overheads", which is largely, but not wholly, independent of the number of students registered and the other that we call "direct student costs", which is wholly dependent upon the number of students registered.

108. The overheads include two main items, firstly, the payments to the B.B.C. for broadcasting services and, secondly, the cost of maintaining the headquarters of the University, including the salaries of the full-time staff. We have agreed in principle the B.B.C. estimates of cost over the next few years (paragraph 86), and these represent maxima on May 1968 prices. The figure for a full year of operation, which will be reached in 1974-75, is about £ 1.8 million. The estimated cost of the headquarters of the University for a full year of operation (to be reached in 1971-72) and for up to 20,000 students is £ 1.7 million. This figure will rise slightly with any substantial rise in student numbers. (Thus, for example, the staff salary bill for handling student records goes up.) We can, however, assume a total overhead component of about £ 3.5 million when the University is fully operating.

109. The other component of recurrent expenditure is the "direct student costs". This is a sum made up of a wide variety of costs including, for example, the salaries of the part-time tutorial staff, the hiring and equipping of viewing centres, the provision of library facilities, the running of summer

residential courses and the costs of printing, packing and posting the correspondence course packages. These costs will depend on the number of students, the pattern of development in the regions, and the degree of sophistication introduced in the way of face-to-face meetings with tutors, summer schools, laboratory classes, etc., all of which we consider highly desirable features of the "systems approach" to learning. It is not possible to forecast the expenditure with any accuracy at this stage.

110. Whatever sum is available for expenditure on "direct student costs" - i.e. over and above the sum spent on meeting the overhead expenditure, there will clearly be decisions of major policy involved in determining whether to accept a large number of students on a basic, inexpensive course, or a smaller number on a more sophisticated course. These decisions are complicated by the additional fact that there are obviously economies of scale; thus the larger the number of students accepted, the smaller is the overall cost per student. Consequently, only with a large total budget can a sophisticated type of course be provided for a large number of students at a relatively low cost per student. The more successful the University is, and the more it is able to expand, the better will be the facilities that can be offered while keeping the total cost per student relatively low.

111. When we consider the total cost per student in the Open University in comparison with that in the established universities, there is a whole range of factors which bear on the problem. For example, it can be argued that the cost per student is not as good a measure of efficiency as the cost per graduate; so that a big drop-out of students in the Open University which would put up the cost per graduate should be allowed for before making comparisons. But, on the other hand, it can also be argued that the students of the Open University are in gainful employment and contributing to the national product and to the tax revenues while they are studying; and that students of other universities are not. Much remains to be found out before a valid comparison can be made, but, in almost any circumstances, the cost per student in the Open University should fall below that in the established universities.

112. We have already submitted budget proposals for 1969-70. These involve total expenditures of approximately £ 1.75 million, including about £ 0.5 million capital expenditure. In the following year, 1970-71, the first students will be enrolled. During that year, therefore, the student numbers will become known and budgets for future years can be more realistically determined. For the year 1970-71 itself we are working on a tentative estimate of £ 3.75 million total expenditure.

113. It should not be overlooked that, whatever the number and cost of students proceeding to degrees may be, there will be substantial marginal gains to those who follow broadcast and/or correspondence programmes in part or who pursue only occasional individual courses. The experience of the B.B.C. with educational programmes in the past suggests that, for

every student who successfully completes any course, ten follow that course having purchased the literature produced in association with it, and about one hundred others watch at least some of the programmes. Although, for university degree level courses, these ratios may be somewhat smaller, there are still good grounds for believing that they will be substantial.

114. Apart from the "grant-in-aid" there are two possible sources of income, firstly student fees and, secondly, the sale of copyright materials. We have not determined a fee policy believing this to be a matter for the council and the Senate of the University. Although we are unable as yet to estimate the income from sales of copyright material, we have already drawn attention to the importance of this possibility (see paragraphs 80 and 81).

XII. CONCLUSIONS

115. In concluding this report we would emphasise that there are many problems which must receive close consideration by the Council and the Senate, and which can only be met by the sustained attention of the Vice-Chancellor and his staff. There are, for example, special problems to be faced in Scotland, Wales and Northern Ireland. In Scotland, the University will encounter extremes both of challenge and opportunity, through the relatively low coverage by television, the uneven provision of library resources, the very remoteness of the highlands and islands, and through formidable problems of travel. On the other hand, in the central belt there is a rich field for experiment and development. Already in Glasgow the local educational television network for schools, colleges and universities is well developed and could co-operate fruitfully with the Open University. Similar problems and opportunities are to be encountered in Wales, in Northern Ireland and, indeed, in some regions of England as well.

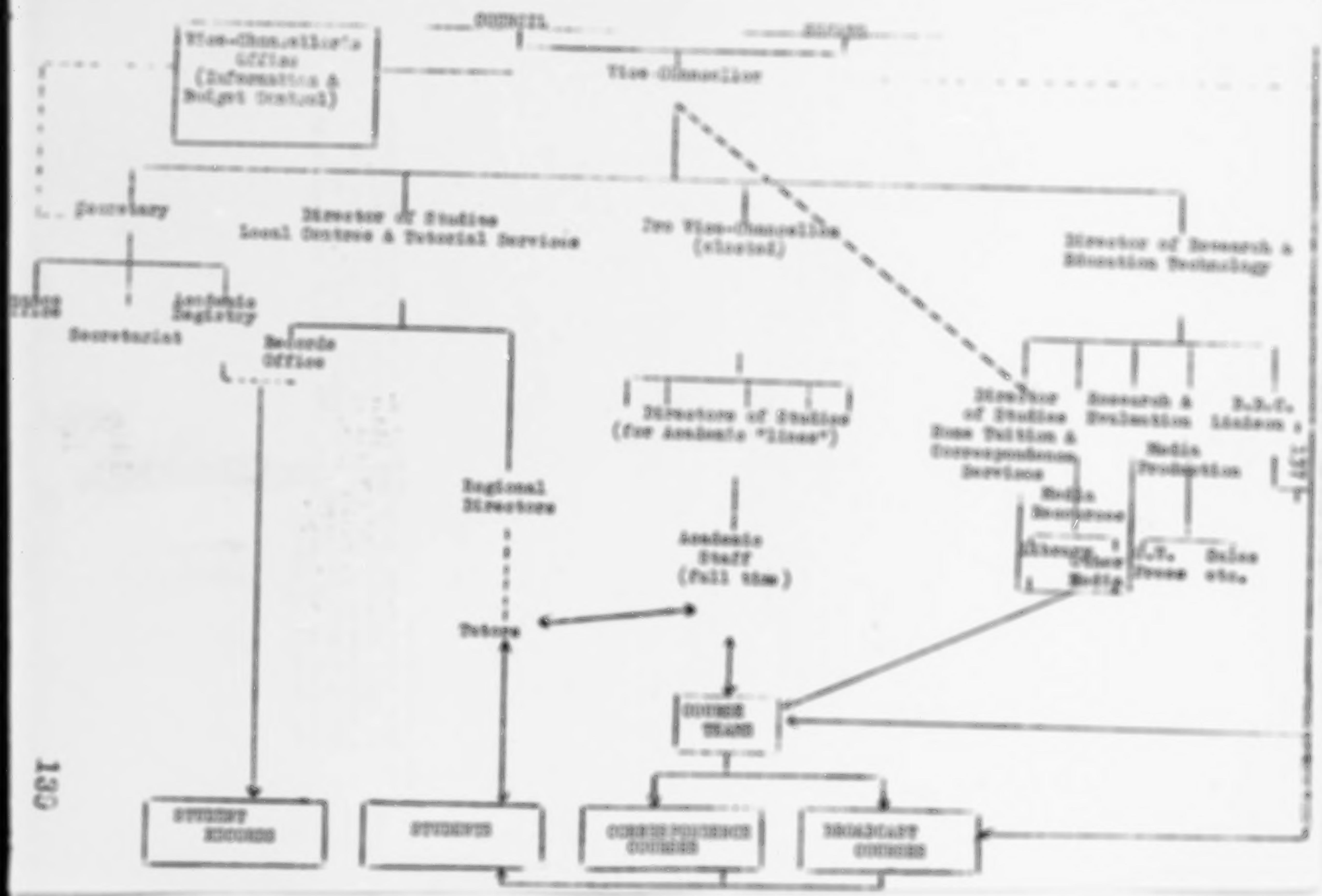
116. Another problem is the extent to which the University should develop special courses for particular regions. For example, there will be those who feel strongly that there is a need for courses in Welsh, and for courses in the literature and culture of Wales. Likewise others will call for courses in Scottish history and literature. It will be important for the University, as its work develops, to take due account of national and regional sentiment in providing courses of study but, in so doing, it must also take due account of the more general programmes provided by the B.B.C., including those provided with the advice of its Further Education Advisory Committee.

117. In the fifteen months since our appointment, we have been very concerned to establish a broad, firm structure for the University and its courses, which will permit the rapid and flexible development of its work. We consider that the stage has now been reached for granting the Charter for the University, under which the Council and the Senate will be able to take effective charge of its affairs. Bearing in mind all the complex problems that have to be solved we were given a very short period, ending by late 1970, in which to devise and implement our plans. We have therefore been particularly concerned to expedite the appointment of senior staff. The Committee remains in being until the Charter has been granted and the first meeting of the Council has been held; meanwhile it will, with the Vice-Chancellor and Secretary Designate, and with its own Secretary, be pressing on as fast as possible with the appointment of the staff necessary to design and write the courses, and also those required to organise the related services of the University. In this we are being fully supported by the B.B.C. in the appointment of the staff required to implement the courses programmed for broadcasting.

178. Over the last twelve months we have consulted many organisations and individuals, and we wish to record our grateful thanks to all those who have given so willingly of their time and thought. All new ventures must expect to encounter scepticism and criticism if not downright opposition, but we have been encouraged by the growing spirit of goodwill towards the University and the generally constructive and helpful nature of the comments we have received. Every new venture depends greatly for its success on the level of co-operation accorded to it, as well as on its staff; in both we have been singularly fortunate. We are glad, therefore, to record our cordial thanks to our Assessors, Mr. R. S. Postgate of the B.B.C., Mr. J. Swindale of the U.G.C., and Mr. E. Toomey of the Department of Education and Science. In particular Mr. Toomey has been most helpful in establishing and assisting our secretariat, in dealing with finance and many day to day matters, and with facilitating discussions on the draft Charter; he and his colleagues of the D.E.S. have at all times aided us unstintingly. Mr. David Stafford was seconded from the D.E.S. to be Secretary of the Planning Committee from the outset and he has very ably tackled, with the full support of his colleagues, the rapidly mounting tasks of an arduous year of work with unremitting zeal and energy.

179. Finally, we wish to pay especial tribute to the understanding and sympathy within the Department of Education and Science of the needs of the Open University as a university, and an illustration of this has already been given in paragraph 103. This understanding has ensured the freedom of thinking, discussion, and of planning appropriate to our task of establishing the University, and of necessary action in the appointment of its senior staff. Moreover, throughout this year we have been unobtrusively but most effectively sustained by the enthusiasm of the Minister of State, the Rt. Hon. Miss Jennie Lee, M.P., and we are very glad to acknowledge her indispensable support of our work.

November, 1968.


COUNCIL
SENATE
Vice-Chancellor
Vice-Chancellor's Office (Information & Budget Control)
Secretary
Office
Academic Registry
Secretariat
Director of Studies Local Centres & Tutorial Services
Pro Vice-Chancellor (elected)
Director of Research & Education Technology
Records Office
Regional Directors
Tutors
Directors of Studies (for Academic "lines")
Academic Staff (Full time)
Director of Studies Home Tuition & Correspondence Services
Research & Evaluation
B.B.C. Liaison
Media Resources
Library & Other Media
Media Production
T.V. Press
Radio etc.
COURSE TEAM
STUDENT RECORDS
STUDENTS
CORRESPONDENCE COURSES
BROADCAST COURSES

THE STANDARD OF LIVING

(1964-1965)1)

An account of an experiment in teaching
Economics by a combination of television,
correspondence and face-to-face teaching
conducted by the Department of Adult
Education of the University
of Nottingham

---

1) This article was prepared by H. C. Wiltshire, Professor of Adult Education at the University of Nottingham, for a publication of the Council of Europe "New Types of Out-of-School Education (Strasbourg, 1968)". It was included in this compendium with the kind permission of the Council of Europe.

Origins and Principles

Education is the sustained process of causing people to learn and this is something that television programmes, by themselves, are unlikely to be able to do. They may present us with new facts, new skills and new concepts,but these, though they interest us at the time, will be forgotten if they remain inert. If they are to be learned they must be used: we must make an effort to remember the new facts, practise the new skills, try out the new concepts and ideas. And we must also make an effort to relate them to our existing stock of information, skills and ideas; for all education is a manipulation of ordering, reorientation and reappraisal, not just a mechanical adding of new facts to old. This is what makes it so interesting.

If the television programmes are on a subject in which we already have a strong interest and a considerable degree of mastery we can do this for ourselves. But most of us most of the time need help to be effective learners; this is why we have teachers and classes and courses and textbooks and all the other things that go to make up a teaching system. If television is to teach it must reach out beyond the screen and engage its viewers in some such planned process of learning. It does this in schools where its programmes are built into a highly formalised teaching system. But can it do it in adult education, where such a teaching system - the schools, the staff, the agreed syllabuses, the common examinations - hardly exists? Can we create a teaching system for this special purpose of teaching adults through television?

It is important that we should try to do this and keep on trying. For in our home-centred society the television set is for most people one of their main windows onto the world. Adult education must learn to use it, not only because it enables us to speak to more people more quickly but also because it enables us to speak to people whom we should never reach by our normal methods of recruitment - people for whom "me-looking-at-the-telly" is a normal and acceptable role, but "me-a-student-in-a-class" is not.

1. Television programmes cannot be packed egg-tight with matter, for the viewer cannot control their pace or turn them back to have another look at a point he has missed. These are the great virtues of print: you can read at your own pace and you can turn back and re-read. So there has to be some print: references to books; probably a specially written textbook.

2. Viewers can now look and read, but they need also to do regular exercises, to rehearse facts, practise skills, use ideas. And they need to have their exercises corrected so that they may learn from instead of being misled by their errors. They need, in fact, courses and teachers. But adult students are not conveniently gathered together in schools and colleges; they are scattered individuals viewing and reading and working at home. The only kind of teaching that can reach them all, that can go wherever the television programmes can go, is cor-

respondence teaching. So there has to be a correspondence course.

3. Our viewers are now becoming students. But a postal link between students and tutors has its obvious limitations: it is difficult for the tutor to see on the evidence of written answers alone just what are a student's difficulties, and even if they are seen and understood to deal with them by correspondence may be a laborious business for both parties. Talking is a so much swifter and more sensitive means of communication. So there have to be face-to-face meetings between students and tutors.

4. Working in isolation, even with the stimulus of a weekly television programme and correspondence course, can be a discouraging business. Just as much as they need to meet tutors students need to meet one another, to realise that their difficulties and their pleasures are shared by others and to check their preconceptions and their progress against those of others. So, for reasons more positive than the obvious ones of finance and of staffing (for we could neither find enough tutors to provide individual tuition nor enough money to pay them if they could be found) the meetings with tutors should be group meetings.

5. Any good teacher is continually responsive to his students, adapting his teaching to the cues provided by comment or question or even by changes of posture or expression. Such flexible response is a normal part of face-to-face meetings and correspondence teaching but difficult to provide in a series of television programmes or a printed textbook. Yet neither need to be completely cut and dried, recorded and printed, before a course begins. As much room as possible must be left for new material which is responsive to students' needs as shown by their performance.

6. If there is such a degree of flexibility there must be some machinery for monitoring both students' exercises and tutors' comments and for collecting the information which is to be fed back to those who are writing television programmes and printed material.

7. These different aspects and media of teaching - television programmes, readings, correspondence exercises, tutoring, residential courses, etc. - must be under one control and must be planned as a single, integrated teaching system. Not much will be achieved if we merely try to attach a correspondence course or a series of class meetings to a pre-existing television course which someone else has planned.

This seemed a possible way of building television into a teaching system, but whether it could be done in England and whether if it were done it would attract and hold enough students to justify it we did not know. Our only exemplars were American ones, notably Chicago's TV College, and these were not uniformly encouraging. But we could but try, and so floated the general notion in an article which appeared in the Times

Educational Supplement in January 1963. The response was, of course, mixed; common objections were
a) the number of students would be too small to justify the use of such a costly medium as television, or
b) the number of students would be too large to be handled by a university adult education department, or
c) both at once.

But there came, quite unexpectedly, an expression of warm interest from Mr. Norman Collins, the Deputy Chairman of ATV, and this encouraged us to think of a possible pilot scheme in the Midlands.

It would be tedious to describe all the negotiations that followed. There were two television companies involved, for the Midlands is served by ATV during the week and by ABC at weekends. But it was ATV that agreed to sponsor and produce the programmes. We had to persuade the various committees of the television company to include such an experiment in their budget and in their educational programme, to get the formal approval of Nottingham University and of the Department of Education and Science to the diversion of teaching resources to the project, and to find the money to pay tutors, set up a correspondence course, print a handbook, advertise the course and meet some of the production costs. The money was provided by a generous grant from the Leverhulme Trust and by February 1964 we were committed to putting on the course which we had talked about for so long; it gave us the fright of our lives. We pulled ourselves together, calculated that we should need six months to write the scripts and the handbook, work out the exercises, recruit tutors and plan publicity, and engaged to begin broadcasting at the end of September 1964. Even so, we had no time to try out material and exercises on students, and made mistakes which we should not have made had we been able to do this most necessary pre-testing.

. . .

A Teaching System

What came out of all this was a course on Economics (called "The Standard of Living") based on a series of thirteen twenty-minute television programmes which were broadcast in the Midlands at 12.15 on Sunday mornings with a repeat at 10.30 on Monday mornings. They began on Sunday 27 September and ran on until Monday 21 December 1964, uncomfortably close to Christmas, as we found. The course was advertised by a wide distribution of leaflets, advertisement in all the newspapers in the area, screen publicity and contact with a number of voluntary organisations. Those who enrolled paid a fee of 10s., received a copy of a specially prepared handbook (a combination of textbook and workbook) and were assigned to a tutor in their vicinity.

The handbook covered the material of the first ten television programmes; the last three were written to meet the needs shown by the work done by students in the first half of the course. Through the chapters of the handbook covered, week by week, the same topics as the television programmes, they contained more statistical material than could be shown on the small screen. The handbook also listed fifteen recommended and fairly accessible economics textbooks; every three weeks students were sent the relevant page references in all fifteen so that all had some guidance to reading outside the handbook.

At the end of each chapter was a tear-out, foolscap, exercise sheet (see Annex), postage prepaid for its return to a central office in Nottingham. All exercises had to be in the post by Tuesday evening. Almost all included twenty or so objective questions (true/false, multiple choice, etc.) and two or three open-ended questions requiring brief statements in reply; only the last three exercises demanded essay-type answers. The objective questions were marked in the central office; the paper was then sent on to the tutor to whom the student was allocated who marked the open-ended questions and commented on the paper as a whole. Papers passed through the central office again on their way back to students where they were sampled and where a week-by-week record of students' errors was kept. When the marked papers were returned to students (usually nine days after they had been sent - too long a delay) a check sheet explaining the marking of the objective questions went with them. With this the student could work through them again and could see why the answers which the office had marked with a tick had been judged right and why those marked X had been judged wrong.

Tutors and Tutoring

We had little idea how many students would enrol but guessed that we might need as many as fifty tutors to teach them. We wanted tutors with a degree in Economics, teaching experience and an interest in adult education; they had also to be dispersed as widely as possible throughout the Midlands. We sought them among our colleagues in the Universities of Birmingham, Keele and Leicester and in the W.E.A., among local members of the Economics Association and in technical colleges and colleges of advanced technology. The response surprised us; there were 255 applicants from whom we selected the fifty who seemed to live in the right places and to have the right kind of experience and interests. In the event we used only thirty-eight of them; our guesses about the distribution of students were not good enough and we found that those living in the vicinity of twelve of these tutors were too few or too scattered to justify the setting up of separate student groups. One consequence of this was that the remaining thirty-eight tutors had rather too many students to deal with: on average about forty-three each. Tutors were paid for their correspondence teaching at the rate of 5 s. per script, and for their local meetings with students 3 guineas per meeting - plus, of course, all travelling and other expenses.

We had two lengthy meetings with tutors: one for general briefing and discussion before the course began and one when the course had been running for a month to iron out difficulties (ambiguities in questions, inconsistencies in marking, and so on). We were anxious that they should see their task as: first, to encourage students to keep on working; second, to help them over difficulties, and third, to assess their progress with reference to their own previous work. They formed an admirable team, and did a difficult job with great skill and patience.

In addition to this postal contact, local student groups could meet their tutors on at least two occasions, one after the sixth programme and one after the tenth, both of them critical points in the course at which they were likely to be in particular need of help. In most cases these meetings were held on Friday or Saturday evenings and lasted for two hours or so. Naturally, tutors were free to use them as they thought best, but in most cases they reviewed matters which the exercises had shown to be difficult and discussed questions which students raised.

Lastly, and rather as a postscript to the course, those students, who could do so attended a weekend meeting held at Nottingham University on 2 and 3 January 1965. This was devoted partly to further group work with tutors and partly to a review of the whole project. Lord Hill of Luton (Chairman of the ITA) and Mr. J. E. Wadsworth (Economic Adviser to the Midland Bank) were the principal speakers.

Presentation

A question often asked is: why did we choose Economics as the subject for our first venture in tele-teaching? There were several reasons:
1) It is an important subject, by which I mean that it is important that there should be a wider understanding of economic principles and issues in the country as a whole. This seemed to help justify the use of public money and of a costly medium of transmission for an enterprise that might fail.
2) It is a subject which lends itself to a measure of programmed instruction since it can be broken down into fairly small sections which, as successively mastered, give students clear evidence of their progress.
3) It is a subject which is in many respects a study of changing relationships (as this grows larger that grows smaller; as this rises slowly that rises fast) and which is therefore apt to visual presentation.
4) It is a subject which is long-established and well-developed in adult education and in which we therefore had half a century of teaching experience upon which to draw.

The television programmes were not educational "showbiz", not a series of distinguished lectures given by a series of distinguished dons. They were quite simple and straight-forward pieces of teaching presented with great skill and patience by an extra-mural tutor of long experience. They were sometimes criticised for slowness of pace and lack of visual interest, and indeed they might have been better had we had the money to spare for a little more use of film and animated cartoon. But not much more; however one may judge these programmes "as television" (whatever that may mean) as part of a teaching system they were about right; though they could of course have been improved in many ways, their slowness and simplicity were from the students' point of view virtues, not defects. The standards which are applied to television programmes as independent artefacts are not appropriate here.

We were fortunate in the Producer and Director assigned to these programmes by ATV, and in support from beginning to end of the project from the company's Education Officer. They identified themselves wholly with our teaching aims and put immense skill at our disposal; the Director in particular worked with us at every stage in the preparation of the shooting scripts and took immense trouble to meet and talk with tutors and students.

Perhaps this is the place to add that we found co-operation with ATV easy and effective throughout. We were, after all, dealing with highly controversial issues at the time of a general election. But we were left free to script and teach as our consciences dictated: nobody ever wanted to approve a script, or suggested that we should avoid this or go easy on that, or that if a managing director was given two minutes on a programme a trade union official ought to be given another two.

The Students

The figures quoted below are of three kinds:

1) Those derived from our records of each student's work; these are shown both as actual numbers and as percentages.

2) Those derived from 867 questionnaires filled in after the course by individual students (excluding members of school and college groups). Those who fill in and return questionnaires are not, of course, representative of those who do not; on the other hand the proportion returned was high: about 60%. The questionnaire (an elaborate one) was drawn up with a view to a full analysis and report. For the purposes of this interim report I have used them in two ways:

   a) For certain purposes I have checked through all the questionnaires; these figures are shown as percentages only.

   b) For other purposes I have checked through a 15% sample of the questionnaires; these figures are shown as fractions only.

3) Where comparison is made with the membership of university extra-mural classes the extra-mural figures are derived

from a survey made in 1963 of 1,785 students in classes in the East Midlands provided by Nottingham University.

So this section lacks all statistical finesse. On the other hand I have only used figures which seemed to be so gross that the general direction of their significance was most unlikely to be altered by a more adequate analysis. They are crude, but justify, I believe, the conclusions which are drawn.

How Many Students?

1. We do not know how many people saw the television programmes, nor is it possible to know, for the normal methods of sampling (TAM ratings, audience surveys, etc.) are too coarse to detect with any reliability numbers of this order (perhaps 50,000, perhaps 30,000?).

2. We do know that 5,063 handbooks were bought, so presumably a rather larger number than this (for some were shared) followed or intended to follow the course.

3. 1,658 of these also enrolled for the correspondence course, etc.; these we refer to as 'enrolled students'.

4. 1,347 of these were individuals who of course enrolled voluntarily and worked at home; these we refer to as 'individual students'. 311 were members of school, college and other groups who presumably enrolled and worked under compulsion. In what follows I am concerned only with the 1,347 individual students who form a group which can quite properly be compared with the adult students in extra-mural and WEA classes.

5. Of these 1,347, 228 were non-starters; they sent in no exercises and in most cases did not reply to frequent reminders. Presumably they decided that the exercises looked too difficult - or too easy - or that they preferred to use the handbook without committing themselves to the correspondence course.

6. Of the 1,119 who actually began the course, 545 (49%) did all the twelve exercises set, 756 (68%) did ten or more, and 865 (77%) did eight or more. This is a remarkable record of persistence among voluntary, adult students working at home, for we must remember that there were a good many late enrolments who missed one or two exercises at the beginning of the course and that the proximity of Christmas created difficulties for some at the end. (Indeed the 311 members of school and college groups, though under compulsion, did not do quite so well: of these 124 (41%) did all twelve exercises, 200 (65%) did ten or more and 237 (77%) did eight or more.) The 77% who did eight or more exercises are the equivalent of what the Department of Education and Science calls 'effective' students in normal adult education, i.e. those who attend at least two-thirds of the meetings and do the written work required of them. In 1962-63 74% of all students registered in extra-mural and WEA courses of similar length (10-12 meetings) were in this

sense "affective": a slightly smaller proportion than among these TV students.

7. Almost all of them read the appropriate section of the handbook for every programme they watched, and over half bought or borrowed books as a direct result of the course. Most spent between one or two hours a week in reading and writing their exercise, a few a good deal longer. Almost all said that they found tutors' comments on their exercises encouraging or helpful or both, and that the check sheets for the objective questions enabled them to understand why they had made mistakes as well as where they had made them. Three-quarters thought that tutors' comments were sufficiently full, but a quarter would have liked longer comments.

8. About two-thirds attended the first meeting with their tutors and one-third the second. The first figure is higher than I should have expected in view of the geographical scatter of these students, the second lower, for most who had attended said that they found the meetings useful. Perhaps it was a combination of the nearness of Christmas, bad weather and the common cold. About a quarter attended the weekend meeting at the University: a larger number than I should have expected.

9. We offered, to those who wanted it and who had completed the course, a Certificate of Attendance. 717 students (53%) asked for this; mainly, it seemed, as a memento of a rather unusual effort.

Who were the Students?

1. Of the 1,347 individual students, 55% were men and 45% women; 29% were housewives. Extra-mural classes tend to attract rather more women than men; probably the choice of subject (Economics) caused the disparity here.

2. Their age distribution was as follows:

	TV students		Extra-mural students	
under 20	11%		5%	
21 - 30	18%		16%	
31 - 40	27%		24%	
Total: 40 or under		56%		45%
41 - 50	26%		17%	
51 - 60	13%		26%	
Over 60	5%		12%	
Total: 41 or older		44%		55%

Comparison is difficult; the TV figures will be affected by the choice of subject, and the Nottingham extra-mural figures may not be representative of the Midlands generally. But there are no very striking differences: the TV group is somewhat younger but it shows the same bunching of students in their thirties and forties. Nor are either strikingly different from the age-structure of the adult population as a whole except for the inevitable under-representation of the over-sixties.

3. Their educational background, as indicated by the terminal age of full-time education, was as follows:

	TV students	Extra-mural students
Left school at age 13 - 15	38%	33%
Left school at age 16	25%	21%
Total leaving at age 16 or younger	63%	54%
Left school at age 17 - 19	21%	21%
Left school at age 20 or more	16%	25%
Total leaving at age 17 or older	37%	46%

Comparison here is even more difficult, for these Nottingham figures are in this respect not representative of the Midlands generally and certainly show a smaller proportion of the better-educated among their students than would be found elsewhere. So it looks as though the TV course was more successful than extra-mural classes generally in attracting those with minimal education or near it.

4. These students had been as zealous as most in seeking part-time education since leaving school; about two-thirds had attended part-time vocational classes and over a half part-time non-vocational classes. But most of these classes had been in practical and recreational subjects; liberal adult education was a new venture for most of these students and only about a sixth had ever attended a university extra-mural or WEA course.

5. The study of Economics, too, was a new venture for most of them and less than a third had tackled this subject in any way before. Why did they do it? Half said that they had no vocational purpose at all in mind when they enrolled; a third said that they joined partly because they thought that knowing a bit about Economics might be of use to them in their career; only a sixth gave this as their main reason for enrolling. Again this is probably very similar to the pattern of motivation in extra-mural classes.

Costs

The bill for this whole operation worked out approximately as follows:

1.	Tutoring:	Fees	£ 3,600	
		Expenses	600	£ 4,200
2.	Office:	Wages	1,300	
		Postages	1,100	
		Stationery, etc.	450	2,850
3.	Printing of handbooks, etc.			1,400
4.	Advertising:	Leaflets	800	
		Press, etc.	550	1,350
5.	Residential accommodation			500
6.	Tutors' time spent in preparing and presenting the course: cost, perhaps			1,500
7.	TV programmes: they were quite simple twenty-minute programmes, costing about £1,100 each			14,300
				£26,100
8.	Receipts:	Fees paid by students ...	700	
		Sale of handbooks	200	
		Fees for residential courses	500	1,400
			Net cost:	£24,700

So it cost £24,700 to provide 1,650 students with a thirteen-week course. This sounds a lot; but how much would it have cost if we had taught them by normal means? The costing of adult education is a difficult business, but it seems likely that the cost per class meeting of ordinary university extra-mural classes is somewhere in the region of £16 to £17 and that the average number of members per class is about 15. To teach 1,650 students for thirteen weeks on this basis we should have had to establish 110 classes and conduct 1,430 class meetings: total cost £24,300 - about the same as that of our television-based course. And this was our first shot; were we putting on the course again we should certainly make some savings, and I think we could quite properly increase the fee for the course. A fee of 10s. was after all a ridiculously small sum to charge for tuition and the handbook and all postage costs; £1 would be juster and would I think have willingly been paid by almost all of our students (a reduced charge would be made, as it was in this case, to school and college groups).

But the really substantial saving would come from working on a larger scale. Suppose we were putting on a nationally-based course and teaching five times as many students. Tutoring costs would be increased fivefold, office costs might be trebled, costs of printing and advertising might be doubled and that of the television programmes might be half as much again; costs of preparation would remain the same, and the cost of residential accommodation is self-balancing. So the bill for such a course might read:

Tutoring	£20,000
Office	9,000
Printing	3,000
Advertising	2,500
Residential accommodation	2,500
TV programmes	21,500
	£58,500

Our 8,000 students would pay, say, £7,000 in fees (allowing for a reduction for school and college groups) and £2,500 for residential courses; extra sales of handbooks would bring the total receipts up to £10,000 and the net cost down to £48,500.

For £48,500 we should now be teaching 8,000 students. Using the same basis of calculation as before this would be the equivalent of nearly 7,000 class meetings which, if provided by normal means, would cost something like £119,000. On this scale, therefore, a television-based course would more than halve normal costs. And an increased use of self-marking techniques, for which there is a good case on educational grounds, could bring the figure down to nearer a third of normal costs. So it really is time that we stopped thinking of such projects as expensive and eccentric luxuries.

Some Conclusions

1. A television-based course can recruit and hold many hundreds of good students who would not be reached otherwise.

2. We can teach effectively through television provided that it is built into a teaching system that involves students in active learning and brings them into contact with tutors.

3. We do not have to wait until we get peak times on a special educational channel; indeed peak times will have their own disadvantages. Even the marginal times at present available can be used to effect.

4. The cost, even on the relatively small scale on which we worked, need be no greater than that of normal class teaching; if the scale were enlarged it could certainly halve normal costs.

5. It would probably prove economic in the use of teaching skills as well as money. Even if an element of face-to-face tutoring is built into the system this will probably require fewer tutors than would be needed if the same number of students were taught in normal classes. What is more important is that it would require less skilled tutors; a very high degree of pedagogic skill is required in those who plan and write the course and the exercises but not necessarily in those who mark them.

6. I think we know enough already to say that this is a method of teaching which works and which ought to be used and developed. But this is not to say that more research and experiment is not needed. For example:

- Television is costly; sound radio is relatively cheap. How can the two best be linked? Will it prove possible to start a course on television and then carry the students over onto radio?

- Can self-marking techniques be used to reduce to a minimum the delay between the writing of an exercise and its correction? Do we have to build in safeguards against cheating? Or can students learn by cheating?

- How near are we to producing an efficient video-tape recorder, compatible with those used by the broadcasting companies, at a reasonable price - say £1,000 or less? If we had such a machine our timetabling difficulties would be greatly diminished.But on what basis should we organise local viewing centres, each with its recorder and its stock of tapes?

- If television-based teaching is accepted, at what points can it make its most effective contribution to our educational system? At university level? At a lower level of professional and vocational training? In industrial training? In general, non-vocational adult education? (These are not, of course, mutually exclusive categories.)

And so on. The questions raised are endless. But this is a measure of the vigour and importance of the new technology.

A N N E X

(A sample of one of the weekly exercise sheets)

EXERCISE 7 - DEMAND INFLATION

Reference Nr. ......

(Programme No. 7 - Sunday, 8th November
and Monday, 9th November)

Name: .... Address: ....

Put a tick in the box if you watched the programme ☐

The first two sections are a quick check on what you have learned. Do not spend more than 10 minutes on them. If you are in doubt turn back to the chapter for the answer.

- SECTION 1 -

True or False: If the statement is true put "T" in the box; if it is false put "F" in the box.

(a) ☐ There is historical evidence that falling prices and unemployment go together.

☐ Only if investment increases too much will total demand exceed the economy's ability to meet it.

☐ An increase in taxation which increases the government's budget surplus is one way of combatting inflation.

☐ If households stopped saving while there was full employment, and nothing else was done, there would be inflation.

☐ The advantage of cutting investment in order to stem inflation is that it can always be made up later.

☐ A government committed to a full employment policy must supervise the performance of the economy.

☐ That fact that prices rise is proof that the government cannot control inflation.

Inflation could be avoided if full employment were not maintained.

- SECTION 2 -

Multiple choice: Which of the alternatives completes the statement best? Put a tick in the box beside your choice.

(a) Inflation exists when:

☐ the economy is over-heated.

☐ there is a sustained rise in prices.

☐ the community is buying more than it can pay for.

☐ there is full employment.

(b) Excess demand causes inflation because:

☐ the output of goods and services is not able to rise as fast as demand.

☐ full employment keeps output down.

☐ it compels firms to raise their prices.

☐ government expenditure is too high.

(c) The central feature of a policy designed to avoid demand inflation is:

☐ the reduction of consumption.

☐ the raising of taxes.

☐ the refusal to make any changes in investment.

☐ the matching of total demand to the economy's full employment output.

(d) With full employment, inflation is a permanent problem because:

☐ it is easier to get wage and salary increases than when there was unemployment.

☐ it is not possible to manage the level of total demand.

☐ there is no margin of idle resources with which to meet an increase in total demand.

☐ it is not possible to maintain full employment and keep prices stable.

- SECTION 5 -

(a) In what order of preference would you put the following measures to prevent demand inflation? Number them from 1 to 5 in the order you prefer.

☐ Cut back investment.

☐ Increase direct taxes.

☐ Make hire purchase more difficult.

☐ A stand-still on the expenditure of all public authorities.

☐ Increase direct taxes.

Explain why you prefer that order.

(b) What other measures can be used to prevent demand inflation?

N.B. : 1. All students are encouraged to complete the exercise, but it should be posted only by enrolled students.

2. Enrolled students are reminded that the exercise should be posted by Tuesday Evening, 10th November, at the latest.

JAPAN'S BROADCAST-CORRESPONDENCE HIGH SCHOOL

This report was compiled and edited by Wilbur Schramm, Director of the Institute for Communication Research, Stanford University, with assistance in the preparation by Isao Amagi, Director, Administrative Bureau, Ministry of Education of Japan, Kazuhiko Goto, Radio and Television Culture Institute, NHK, Masunori Hiratsuka, Director, Japanese National Institute for Educational Research, Yukihiro Kumagai, Director, Radio and Television Culture Research Institute, NHK.

The editor of the present compendium is grateful to the Director of the International Institute for Educational Planning in Paris for permission to reprint this study in abridged form from

New educational media in action:
case studies for planners.

Paris, Unesco/IIEP, 1967.

Some facts about Japan.

Japan is a country of islands stretching from the 30th to the 46th latitude off the coast of Asia. Most of the land area of 142,000 square miles is contained in four major islands and only about 20 per cent of the land is arable, due to the rugged terrain. The long north-south sweep of the archipelago and the varied terrain results in considerable climatic variation over the country.

The 1960 census numbered a population of 93.4 million; but in mid-1966 it was estimated that this had increased to 98.9 million. Population density is 654.3 persons per square mile; 36.5 per cent of the population is classified as rural.

The economy is dynamic, the national domestic product having doubled between 1958 and 1962. The per capita income gross national product is now about $ 600. Agriculture, which employs 27 per cent of the total labour force, accounts for 14 per cent of the national domestic product while 37 per cent comes from the secondary sector of the economy, 48 per cent from the tertiary.

Expenditures on education represented 22 per cent of the public expenditures and 5.3 per cent of the national income. Almost all children attend at least through the elementary and junior high (grades 7, 8 and 9) schools which are mostly public. In 1962, primary enrolment was 11 million, junior high school enrolments 7 million and there were 3.5 million students in the high schools (grades 10, 11 and 12).

The nation has one of the world's highest literacy rates (97 per cent), a fact reflected in the 40-million circulation of the 100 daily newspapers. Radio was originally monopolised by the government broadcasting corporation, Nihon Hoso Kyokai (NHK), which is supported by receiver licence fees. The NHK now operates two AM and one FM networks, totalling 396 stations. There are also about fifty privately owned commercial stations. There are 19.6 radio receivers per 100 population and 93 per cent of the schools are equipped with a receiver. The NHK devotes 19 per cent of its total broadcast time to educational programming. The NHK also dominates television broadcasting with its chain of over 300 stations, but there are also 133 commercial stations. There are over fourteen sets per 100 persons. The country is served by a highly developed rail system as well as highway and air transport networks. The national mail service is very efficient, creating excellent opportunities for utilising correspondence education techniques.

THE BACKGROUND

When the NHK Correspondence Senior High School came into existence, in 1963, over 99 per cent of healthy Japanese children of appropriate age were enrolled in the first nine grades of the public school system. But only about half of the students who completed grade 9 found places in senior high school.

This inability of so many qualified students to continue their formal education beyond junior high school had for some years been a matter of concern in Japan. Students felt that they were under inordinate pressure to survive the ninth-grade cut. Parents felt that many children were being deprived of better job opportunities. Officials realized that many children had the ability to profit by further schooling and thus were not being allowed to develop their talents fully. Out of this situation, repeated annually for a number of years, came the idea of teaching high school work by correspondence. The first high school correspondence course was offered in 1948. By 1963, nearly 100,000 high school students (mostly young workers) were enrolled in a variety of courses; 735 full-time teachers and 2,078 part-time teachers were giving the courses; more than 200 administrative personnel were assigned to the operation; and sixty-six correspondence schools were active with over 400 other schools co-operating.

The NHK school represented a marriage of this correspondence study tradition with educational broadcasting. School broadcasts, like correspondence courses, were much older than the NHK school. Radio programmes for schools began in 1935; and the first programmes specifically designed to accompany correspondence work had been offered in 1951. These programmes were prepared by the Sendai regional central station and broadcast to that part of the country. The first courses were in the subjects Japanese, English, and science. In 1953, NHK began to broadcast correspondence-related radio programmes nationally. The next year more advanced work was offered by radio in the same subjects - Japanese, English, and mathematics. Soon the beginning courses were turned over to local stations and NHK network programming was concentrated on senior high school courses. Course offerings were gradually expanded, and in 1960 senior high school programmes were telecast for the first time on the national educational television network. In that first year, chemistry, general electricity, mechanics and mechanical drawing, descriptive geography, English, and guidance were taught by television. Biology was added in 1961, and the same year plans were initiated for a university-level correspondence course supported by television broadcasts. By 1963, a majority of the subjects in the high school curriculum were covered by broadcasts; the same subjects, usually with the same teachers, were broadcast on both radio and television. Six additional courses were added in 1965; and some eight additional subjects are to be added to meet the requirements set by the Ministry of Education.

Thus, by 1963, there was a well-developed programme of correspondence study available in Japan at the high school level, and an extensive series of television and radio broadcasts designed to aid the correspondence students. It should be noted that Japanese broadcast correspondence education has developed in a pattern different from most correspondence systems in that the student is given much less opportunity to work at his own pace; rather, the broadcasts pace him. He submits his papers and takes his examinations at scheduled times during the school year. He takes fewer subjects than resident students because he is working at a full-time job. However, the work he does take is scheduled on the pattern of the regular school year. The Japanese correspondence plan is also different from most plans in that it includes a certain number of days each year to be spent in a school, so that the correspondence student may have some of the advantages of group activities and direct supervision from a teacher. The requirement is usually that the correspondence student must spend twenty days a year in this manner, but is reduced by three-tenths if he follows the radio courses, five-tenths if he follows the television, and six-tenths if he follows both radio and television courses.

This is the pattern into which the NHK school was introduced in 1963. The new school came into being for two reasons. Primarily it was to serve as a place where the combination of broadcast and correspondence work could be studied, perfected, and demonstrated - in other words, to be a kind of experimental and demonstration school for the new method. Second, the NHK school was to operate on a national scale; unlike the local correspondence schools, it was to have all Japan as its campus, and students of all kinds from all parts of the country were to study and to be studied in it. Of course, the new school rapidly grew to such a size that it does not fit the typical pattern of experimental schools; nevertheless the function of testing and improving of methods remains an important part of the school even while it performs its service function of bringing secondary education to many thousands of students.

The School

The NHK Correspondence High School was established as a juridical person, independent from NHK itself. Therefore the school, rather than NHK, is in charge of the correspondence courses; and NHK is in charge of the broadcasts which are designed to accompany correspondence study. These broadcasts are not limited to the students of the NHK Correspondence School, and indeed are used by students of all correspondence schools in Japan. However, they are an essential part of the NHK school curriculum. Unlike most instructional television throughout the world, these broadcasts are considered not as supplementary but as essential to the courses; the correspondence students in effect attend class by listening to or viewing the NHK programmes. The school was designed to serve as a pilot project in the combination of broadcasts with correspondence study, to establish models for programme utilization, and to collect data for programme improvement. Therefore, although there is no control by NHK over the school, the relationship remains very close.

The organization of the correspondence school is outlined in Figure 1.

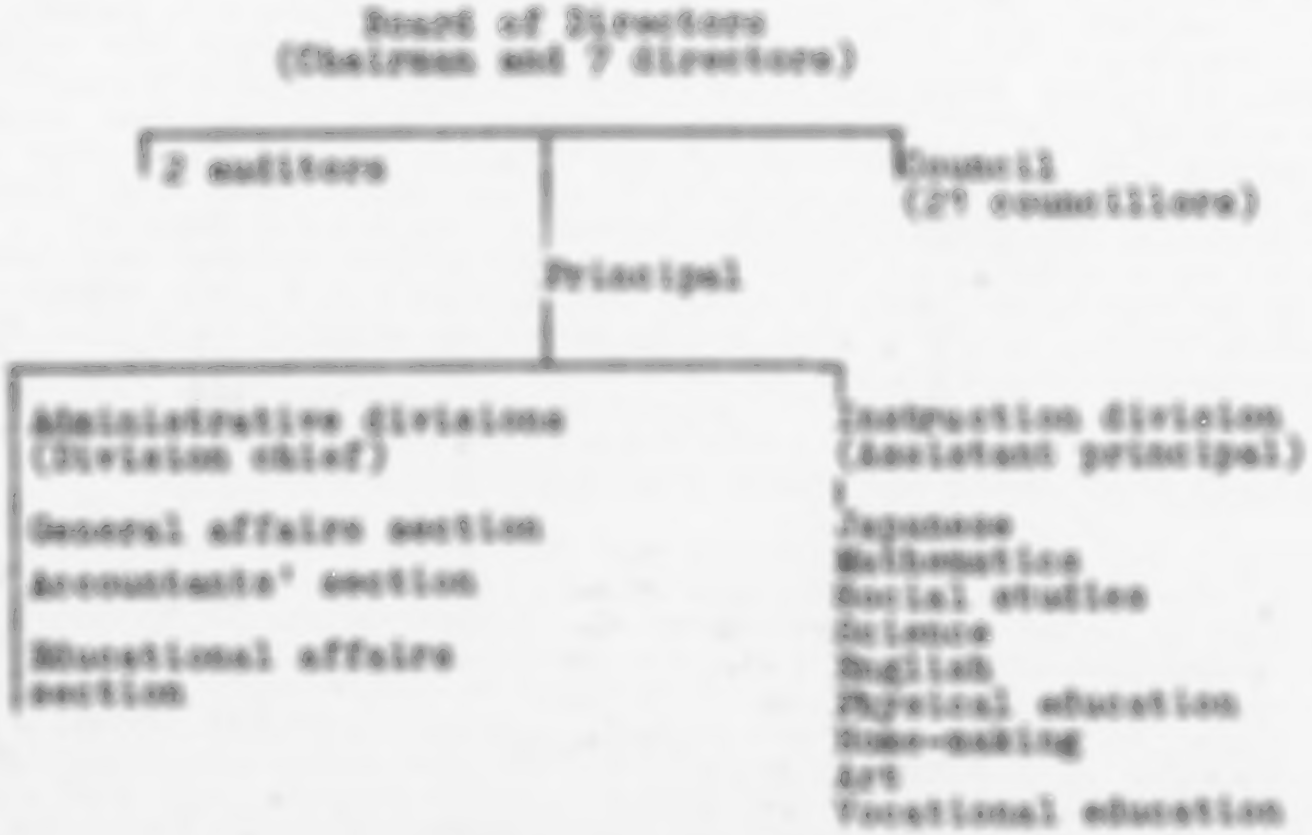

Board of Directors
(Chairman and 7 directors)
2 auditors
Council
(27 councillors)
Principal
Administrative divisions
(Division chief)
General affairs section
Accountants' section
Educational affairs section
Instruction division
(Assistant principal)
Japanese
Mathematics
Social studies
Science
English
Physical education
Home-making
Art
Vocational education

Figure 1. Correspondence school organization

On the staff of the school, in addition to the principal officers named, are seventy-four teachers and fifty clerks. In addition, there are four part-time instructors, and about 200 outside instructors are called upon at various times during the year to assist in correcting examination papers.

The school itself has 34,606 square feet of floor space and is set in a ground area of about 123,193 square feet. The main building is a three-storey structure with basement, containing offices and five general class-rooms, and four special class-rooms for science and home-making classes. There is also a two-storey dormitory building with accommodation for 102 persons. The class-rooms and lodging facilities are used for the students who come in for a week or two during the year for their special education activities. The general class-rooms are in use, on the average, about fifteen to eighteen hours a week; the special class-rooms ten to fifteen hours. The instructors who correct papers and handle other correspondence educational matters are allotted approximately 77 square feet per person.

A large proportion of the students do not go to Tokyo to take their special education and their examinations at the main school. Rather, they go to co-operating schools, which are available in all parts of the country. In November 1963, the number of these co-operating schools was seventy-four. Officers of the central school hold frequent consultations with the principal and superintendent of each co-operating school, so as to make the schedule, the requirements, and the class work uniform throughout the country.

Co-operation between NHK and the school is extended on a nation-wide scale by administrative arrangement. The directors of all NHK's central and local stations are asked to take part in the NHK school work as counsellors. For each station having a co-operating school located in its service area, a special staff member is appointed to consult with the school on the relation between the broadcast and correspondence work, and to give guidance and assistance to the students.

The school year begins in April. Enrolments are invited in each prefecture by advertisements in newspapers, posters, and pamphlets, as well as by broadcast announcements. Those who have completed the full three-year course of junior high school, or who are recognized by a junior high school principal as having equivalent scholastic attainments, are eligible. Prospective students submit their papers, and the principal of the NHK school admits or rejects them.

The Students

In its first year, beginning April 1963, the NHK school enrolled 11,721 students. In the second year, the enrolment was 12,006, and in the third year, 13,165. Each year, females have outnumbered males in the student body by a ratio of about 55 to 45.

Just over 59 per cent of these students are of teen age. Nearly 32 per cent are in their twenties, and nearly 8 per cent in their thirties. One per cent are in their forties, and a handful are still older, with even a few students in their seventies. About one out of five of the students comes from Tokyo; the others, from all parts of Japan. About 36 per cent of the present enrolment are factory workers. Other occupations represented by more than one per cent of the student body are listed in Table 1.

Thus a very wide range of occupations is represented; and almost all the students are holding full-time jobs while they carry the school work.

This latter fact, of course, makes it more difficult for the students to finish the curriculum in the allotted four years. A full-time student completes high school in three years. However, in order to avoid undue strain on young people trying to work full time and study at the same time, no correspondence student is permitted to complete the course in less than four years; and only the ablest can do this. The NHK school has not been operating so long that it is possible to tell what proportion of the students is able to graduate in four years; but it is possible to say that of the 11,721 students who entered the school in April 1963, only 32 per cent entered the third year class in 1965. Students are not permitted to enter the third year until they have completed all the required work of the first two years.

Table 1. NHK school enrolment: occupations other than factory workers

Occupation	Per cent of NHK enrolment
Shop workers	6.9
Defence forces	4.9
Hospitals	3.7
Clerical	3.5
Agriculture and marine industry	3.2
Public service workers	2.6
Housewives	2.3
Transportation and other services	2.0
Housemaids	1.9

One very interesting observation on the student body of the NHK school is that the school is bringing back into academic life a number of people who have been out of school for a long time. Of the 1965 student body, 32 per cent had completed grade 9 more than five years previously, and 13 per cent had finished more than ten years previously.

The Curriculum

The courses taken by NHK students are comparable in every way with those followed by students who go to local schools; but the NHK curriculum, outlined in Table 2, is devided into four years, rather than three. If a student does not satisfactorily complete all his first-year subjects, he must take in the second year the ones he has not passed. He must complete all his first and second year subjects before he may enter the third year.

The students are expected to submit papers and reports for each subject on specified dates throughout the year. If fewer than the required number are turned in, credit is not supposed to be granted for the course even though the examinations are passed. Reports are corrected and graded and returned to the student by the NHK school. The number of reports required varies with subjects. For example, nine reports are required for mathematics I, six for physical geology. Preliminary examinations are held in July, September, and November, and the final examination in February of each year. Not all subjects are necessarily tested in each examination. All the examinations are held in a school - either the main school in Tokyo, or one of the co-operating schools throughout the country.

Table 2. NHK school curriculum

Subject	Sub-categories	Number of unit hours First year	 Second year	 Third year	 Fourth year
Japanese*	Present-day Japanese	3		3	3
	Classics I		3	3	
	Classics II				(3)[1]
Social studies	Ethics and civics				2
	Politics and economics				3
	Japanese history				4
	World history		4		
	Geography	4			
Mathematics	Mathematics I	3	3		
	Mathematics II			5	
Science	Physics				4
	Chemistry			4	
	Biology	4			
	Physical geology		2		
Health and physical education	Physical education	3	2	2	2
	Health		1	1	
Art	Music		2		
	Fine arts				[2][2]
	Penmanship (Japanese calligraphy)			[2]	
Foreign languages	English	3	3	4	
Home-making	General home-making		4[3]		
Vocational education	Agriculture				[4]
	Industry				[4]
	Commerce				[4]
Unit hours (approximate total 86)		20	20 or 24[3]	22 or 24	22 or 24 18[3] or 20
Special educational activities Unit hours		12	12	12	14

Notes
1. ( ) Elective sub-category
2. [ ] One sub-category to be selected in the subject
3. Denotes 'female'. The difference in totals of unit hours is due to different numbers of male and female students taking various courses

In addition to doing the correspondence work and attending to the broadcasts, the student is required to be present for about twenty days of schooling per year, either at the school at Tokyo or at one of the co-operating schools elsewhere in the country. This school attendance is designed to supplement the correspondence student's contacts with the teachers through mail and broadcast, and to give him some little taste of school life and acquaintance with his fellow students. During these days, the student receives special guidance in each subject, takes part in special educational activities such as home room exercises, students' association and club activities, and attends the entrance ceremony, athletic meetings, and other school events. These special days for correspondence students are arranged at the Tokyo school ten times a month, mostly on Sundays and Saturdays, and on one Monday and one Tuesday each month. Co-operating schools usually set aside about two days a month for correspondence students. For students who cannot attend these school days, there is an opportunity to join in intensive six-day periods of 'schooling by lodging together', for which the correspondence students are lodged in dormitories. At the Tokyo school, these periods come ten times a year, and in each of eight separate locations throughout the rest of Japan they are held twice a year - each time for six days. Thus a student can join one of the schools during his job vacation.

The year's work is judged and graded in March. Collective judgment is given by the graders on each subject, and takes into account: a) the number of reports submitted and their quality; b) attendance at regular schooling; c) results of examinations. A five-point marking system is used. A grade of less than two is not passing. Final decision in each case rests with the school principal. Subjects on which a student does not receive a passing grade must be repeated in the following year.

Textbooks and Study Materials

The correspondence students, in their home study, use textbooks selected by the National High School Correspondence Education Research Association from among the high school textbooks authorized by the Ministry of Education; textbooks thus selected are used at all correspondence schools across the country. For the students using broadcasts, work books (study guides) are prepared so as to fit in with and supplement the chosen textbooks.

To compile the broadcasting work books, a committee is set up, composed of representatives of the National High School Correspondence Education Research Association, the writers of the textbooks, the broadcasting lecturers, and the NHK Correspondence School broadcast division. They examine and revise an outline for each of the books, which are actually written by the lecturers who are going to give the broadcasts. The work of preparing the new books begins at the end of September and is completed by the end of the following February. Then the books are printed by the Nihon Hoso Shuppan Kyokai, an affiliate of NHK, and are ready for use in the school year beginning in April.

In addition to the textbooks and broadcasting work books, a monthly magazine is published, THE NHK SCHOOL, which provides supplementary instructional materials and information about the school. There is also a booklet, GUIDANCE IN STUDY, which is written and revised as often as necessary by teachers of the NHK school.

THE ORGANIZATIONAL FRAMEWORK

The Broadcasts

The radio and television courses are broadcast six days a week at choice evening hours (8 to 10 p.m. for radio, 9 to 11.20 p.m. for television) and Sunday from 10 a.m. to 2 p.m. In many countries, of course, these hours would not be available for instructional television; but Japan has an educational television network which is used for school broadcasts during the day and for correspondence study broadcasts and related purposes in the evening.

The same lecturers and the same textbooks are used for radio and television broadcasts, and the same courses are represented, although an elective subject such as calligraphy, which depends so much on visual demonstration, is on television only. In scheduling, priority is given to the needs of the first-year students. For this reason, courses such as English I, mathematics I, modern Japanese I, physical education, and home-making are broadcast at the most desirable hours. Special care is taken to help the correspondence students master mathematics. Most of these students enter the correspondence high school three to five years after graduating from junior high school, and many of them by that time have forgotten their previous mathematics and have great difficulty with high school mathematics courses. This weakness in mathematics is reflected in lack of progress in science and certain other subjects. Therefore, a course in junior high school mathematics is broadcast throughout the year as a review. Finally, courses are scheduled so that the same subject is not broadcast simultaneously on radio and television. This ensures that the same teacher can teach the same subject on both media, if the broadcasts are live, and also that a student who wishes to gain extra help by hearing the subject discussed twice may do so.

The 1965 programme of broadcast courses in support of the correspondence study is outlined in Tables 3 and 4.

An explanation may be required to understand the "Special educational activities" listed in this programme. The Japanese Ministry

Table 3. Time-table for correspondence high school courses by radio, 1965

	8 to 8.20 p.m.	8.20 to 8.40 p.m.	8.40 to 9 p.m.	9 to 9.20 p.m.	9.20 to 9.40 p.m.	9.40 to 10 p.m.
Sunday	Chinese classics	Health and physical education	special educational activities			
Monday	English(3)	Math.II	English(1)	Geography	Japanese classics	Elementary Math.I
Tuesday	Modern Japanese (2)	Math.I (second part)	Modern Japanese (1)	Geography	Music(I)	Elementary Math.I
Wednesday	Chemistry	English (2)	Math.I (first part)	Biology	World history	Elementary Math.I
Thursday	English (3)	Math.II	English (1)	Geography	Japanese classics	Elementary Math.I
Friday	Modern Japanese (2)	Math.I (second part)	Modern Japanese (1)	Geography	General home-making	Elementary Math.I
Saturday	Chemistry	English (2)	Math.I (first part)	Biology	World history	Elementary Math.

Note

In addition, Homeroom, which covers special educational activities, is broadcast every Sunday at 12 to 12.05 p.m.

of Education stipulates that the curriculum for senior high schools include academic subjects, special educational activities, and school events. Special educational activities include homeroom (which is organised by grade or class), club actitivities (organised by students of various grades who have similar tastes), and students' society activities (organised on the basis of the homeroom or club as a unit).

Special educational activities are intended to foster desirable attitudes and the development of personal character and of the democratic way of life. The programmes of special educational activities are individually arranged by each regional central broadcasting station, taking into account regional differences.

On the radio, materials convenient for individual listening in the home are presented as special educational activities, for example: 'Why Do We Study?' (a discussion meeting), 'My Study Plan', 'How to Make a Report', 'In a Certain Small Factory', 'Let's Think Together', 'Exchange of Letters', 'A Visit to Studying Groups', 'Participating in the Screening in a Camp', 'My Youthful Days', 'Books that Impressed Me' and 'My Living Plan'.

Table 4. Time-table for correspondence high school courses by television, 1965

Monday to Saturday	9 to 9.30 p.m.	9.30 to 10 p.m.	10 to 10.30 p.m.	11 to 11.20 p.m.
Monday	Modern Japanese (1)	Math. I (second part)	English(3)	Elementary mathematics I
Tuesday	Math.I (first part)	English(2)	Math.II	Elementary mathematics I
Wednesday	English(1)	Chemistry	English(3)	Elementary mathematics I
Thursday	Chinese classics	Math. I (second part)	Math. II	Elementary mathematics I
Friday	Math.I (first part)	English (2)	Japanese classics	Elementary mathematics I
Saturday	English(1)	Modern Japanese (2)	Math. II	Elementary mathematics I

Sunday	10 to 10.30 a.m.	10.30 to 11 a.m.	11 to 11.30 a.m.	11.30 to 12 a.m.	1.30 to 2 p.m.
First week	Geography	Biology	English(1)	Chemistry	Calligraphy
Second week	Geography	Biology	English(3)	Chemistry	Special educational activities
Third week	World history	Geography	English(2)	Health	Music
Fourth week	World history	Geography	Japanese classics	General home-making	Physical education
Fifth week	Exercises in each subject	Exercises in each subject	Exercises in each subject	Exercises in each subject	Exercises in each subject

On television, special educational activities are conveniently arranged for group viewing in the homeroom during schooling sessions. Each programme is designed to present a problem and a clue to solving it, so that a discussion can be held on the problem following the broadcast. For example, there are such programmes as 'A Record of a Correspondence High School Student' by film and discussions, 'a Diary of Entering School' by drama, as well as 'Let's Get into Company' and 'A Record of Club Activities' by film and discussions.

The homeroom hour is arranged so as to be suitable for group listening at schooling sessions. The contents include such programmes as 'A Talk by the Learned', 'An Explanation of the Correspondence Education System', 'How to Make a Report', 'A Discussion of Friendship' and 'This Month's Counselling' where students' troubles are discussed in a practical way.

In using the broadcasts at home, students are advised to follow this pattern:

1. Check the broadcasting schedule to make sure when courses are broadcast.
2. Prepare for the broadcast lessons by studying the textbook and the work book.
3. Listen to or view the required broadcast.
4. Review the contents of the broadcast.
5. Complete the required report or other recommended activities.

Planning and Producing the Broadcast Programmes

The broadcast programmes that form part of the curriculum are written and produced in the correspondence school broadcast division of the NHK education department. NHK, Japan's very large non-commercial broadcasting organisation, operates two television networks, two AM and one FM radio networks, and overseas broadcasting transmitters. At the beginning of 1966 there were 370 stations on the general television network, 361 on the educational television network, 297 on the AM radio networks, and fifty-nine on the FM radio networks.

Education, one of nineteen departments in NHK, is organised as shown in *Figure 2*.

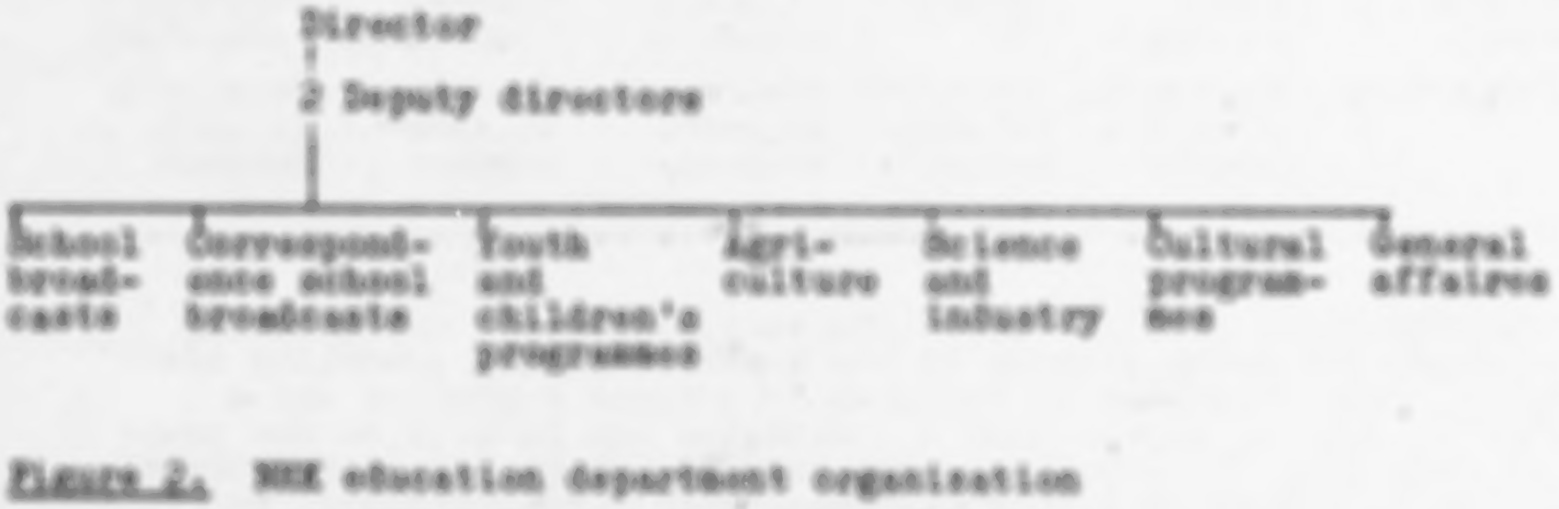

Director
2 Deputy directors
School broadcasts
Correspondence school broadcasts
Youth and children's programmes
Agriculture
Science and industry
Cultural programmes
General affairs

Figure 2. NHK education department organisation

The correspondence school broadcast division includes seventy persons. It has a division manager, four assistant managers, a chief producer, and nine units, each headed by a unit chief. The production of correspondence course programmes is divided by subject-matter among these units. They are responsible not only for correspondence high school programmes, but also for appropriate university-level correspondence programmes and language programmes for the general public. One unit, in charge of programmes on biology, physical geography, and chemistry, is housed in the newly built NHK broadcast centre so as to have access to the special facilities required by broadcasts on science.

The process of producing these programmes begins in March of each year, when decisions are taken as to what programmes are to be made for the school year beginning thirteen months later. (See Figure 3) That is, decisions are taken in March 1966 on the programmes to be broadcast beginning in April 1967. As soon as basic decisions are made, the correspondence school broadcast division plans the contents of the desired programmes. In this process, the planners confer repeatedly with the NHK correspondence school, and take account of nation-wide surveys of opinions by the NHK Radio and Television Culture Research Institute, the study results from schools commissioned by NHK to study the courses, and all other appropriate feed-back from previous years. When the director of the education department has approved the course plans, they go to a committee of the National High School Correspondence Education Research Association, which is an independent organization representing all the correspondence high schools of Japan. A representative of the Ministry of Education takes part in the deliberations of this committee.

When the committee has finished its work with the course plans, the total programming plan is sent to the programming section within NHK, and conferences are held to determine scheduling and other arrangements. This planning is finished by the end of September.

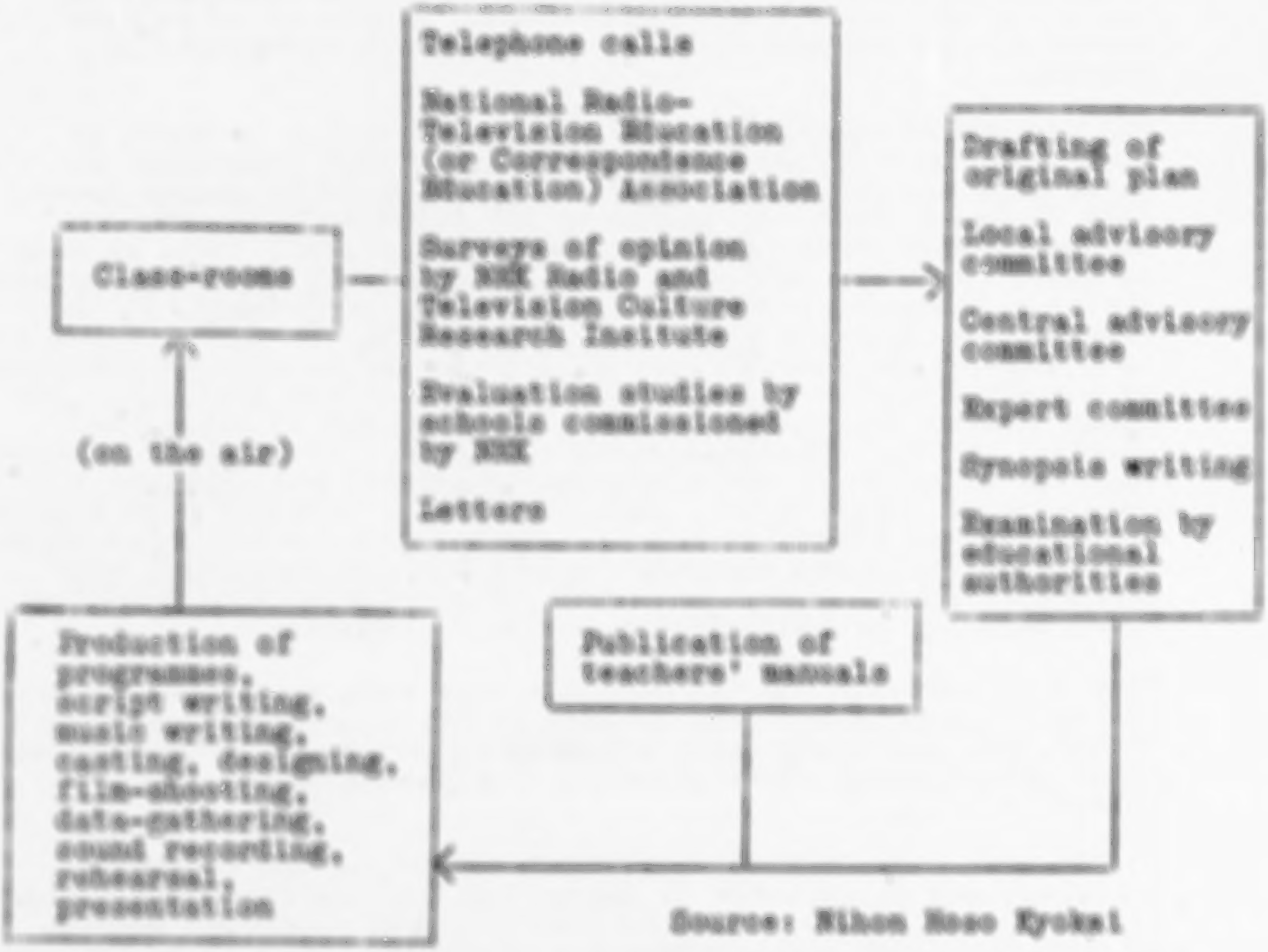
At the same time, work is being done to select the broadcast lecturers and to organize in detail the written plans for broadcasts. Lecturers are chosen if possible from among the writers of current school and broadcasting textbooks. When it is not possible to find suitable lecturers among them, selection is made from other sources. Final decision is made by the director of the education department. The lecturer in each course takes part in the drafting of plans and the making of schedules. All this work is completed some time in December, and the plans are published.

The published plans are then submitted for comment to all the correspondence schools of the country. The committee of the national association mentioned above is called back into session to act on the opinions and suggestions sent in by the correspondence high schools.

The long process of planning is completed at the end of January or the beginning of February, when the plans are formally adopted. At some time in February - nearly eleven months after the first decisions were taken - the correspondence school broadcast division begins to produce the programme for the year beginning in April.

Figure 3

How school radio and television programmes take shape


Telephone calls
National Radio-Television Education (or Correspondence Education) Association
Surveys of opinion by NHK Radio and Television Culture Research Insitute
Evaluation studies by schools commissioned by NHK
Letters
Drafting of original plan
Local advisory committee
Central advisory committee
Expert committee
Synopsis writing
Examination by educational authorities
Class-rooms
(on the air)
Production of programmes, script writing, music writing, casting, designing, film-shooting, data-gathering, sound recording, rehearsal, presentation
Publication of teachers' manuals

Source: Nihon Hoso Kyokai

A pamphlet of about fifty pages, describing in detail the broadcasting plan that will be put into effect in April, is prepared for NHK's local stations. At the beginning of March, the detailed plans for courses and schedules are delivered to each correspondence high school throughout the country. In April, registration takes place; and the courses begin.

The courses are carefully studied and evaluated twice a year, in June and October, by representatives of the National High School Correspondence Education Research Association, the NHK Correspondence High School, the broadcasting lecturers, and the NHK Correspondence School Broadcast Division. About ten members examine each course, review sample programmes and raise questions for checking and discussion. In addition, fifteen schools throughout the country are asked to survey the use of the course materials and broadcasts by students in their schools. This survey is reported in Tokyo in February of each year. The NHK Correspondence School Broadcast Division also participates when studies are made by the correspondence education section of the National Federation for Broadcasting Education Research, the study group of the National High School Correspondence Education Research Association, and the study group of the Japan Correspondence Education Society. Thus a considerable amount of feed-back information is available to guide the planners and producers of programmes and text materials.

COSTS OF THE ACTIVITY

Accountable costs of the correspondence senior high school education provided by NHK are in four categories:
a) expenditures for broadcasting the lectures;
b) expenditures of the correspondence senior high school;
c) expenditures for co-operating schools; and
d) expenditures borne by students.

Broadcasting expenditures

These costs may be divided into the expenses of producing and the expenses of transmitting programmes. Amounts chargeable directly to the programme (items 1 and 2 in Table 5) are clear. In calculating the salaries of production personnel, however, more difficulty arises. Technical workers have been excluded from this calculation because it was felt impossible to estimate on any meaningful basis the extent to which they have participated in preparing and producing these particular programmes. On the other hand, all seventy members of the correspondence education division of NHK were assumed to have taken part in the preparation and production of the correspondence lectures, although certain members are engaged also in producing the university lectures and the foreign language lectures. Thus technical salaries may be underestimated, and non-technical ones overestimated. In each case, the salary items have been divided between radio and television on the best available estimate of hours devoted to the two services.

The costs of transmitting programmes have been limited to costs for the microwave circuit which are clearly chargeable to this particular programme activity. These costs have been estimated on the basis of the proportion of total broadcast hours filled by the correspondence lectures. It can be argued that some proportional part of the total cost of NHK broadcasting facilities and equipment, and the expense of operating transmitters throughout the country, should also be charged to the correspondence lectures. However, these facilities were in existence and use before the introduction of correspondence lectures, and their use for the new purpose is a very small proportion of their total use. Furthermore, the NHK school is only one out of approximately seventy correspondence schools in Japan; a very large proportion of these schools make use of the NHK correspondence lectures, although the extent to which they do so is not fully known. The educational network, on which the correspondence lectures are carried, is used most of the day for school broadcasts. More than 22,000 schools are known to be using the radio broadcasts systematically, and more than 27,000 to be using the television broadcasts systematically. One programme alone, a science programme for elementary schools, is believed to be viewed by more than 1 million pupils. Thus the audience of correspondence lectures represents only a few thousand out of a number of millions using the NHK educational network. Therefore, were it possible to calculate accurately a pro-rated cost of transmitting the correspondence lectures, it would be only a small sum in comparison to other costs. For this reason, and because it is not possible to calculate transmission costs accurately, it has been excluded.

Tables 5. Production and transmission costs, 1964

Type of expenditure	Television	Radio
1. Costs of producing correspondence lectures		
Production salaries	95 000	85 250
Committees set up for producing programmes	15 000	6 000
Direct production expenses:		
Scenarios and compositions	8 000	9 000
Costumes and setting	47 000	---
Performers	43 000	25 000
Raw film	16 000	---
Filming and tape recording	47 000	8 000
Others	17 000	2 000
Total	288 000	135 250
2. Costs of transmitting correspondence lectures		
Total	598 900	64 200
Total costs	886 900	199 450

Considering that correspondence lectures are broadcast fifty-one weeks a year, this cost is about $ 3,911 per week for radio, $ 17,390 for television. Per hour the cost is about $ 948 for radio, $ 947 for television. This latter figure corresponds very closely to NHK's own estimate of the cost of its educational television network - $ 1,000 per hour.

Expenditures for the NHK Correspondence Senior High School

The total budget for the NHK Correspondence Senior High School for fiscal year 1965 is outlined in Table 6.

Table 6. NHK Correspondence Senior High School budget, 1965 (in dollars)

Type of expenditure		Amount
Salaries of teachers and clerical personnel		269 000
Instruction (except salaries)		
Teaching materials, correction, and residential schooling	208 000	
In-service training of teachers (including travel)	12 000	
Total		220 000
Administration		
Council and related expenses	12 000	
Operation of physical plant (school building, light, water, gas)	20 000	
Staff benefits (medical examination of teachers and clerical personnel, unemployment insurance, etc.)	15 000	
Equipment and other	70 000	
Total		117 000
Amortization (Capital outlay is here represented in terms of depreciated value)		28 000
Reserves		4 000
Total		$ 638 000

In 1966, when the school begins to offer the fourth-year course, it is reasonable to expect that these costs will increase.

Table 7 compares the distribution of costs for the correspondence high school with that of the full-time and part-time public high schools; it is apparent that the proportion devoted by the correspondence high school to salaries is relatively low, and that the proportion devoted to other expenses of instruction is relatively high.

This difference results from the fact that the correspondence high school employs a relatively small number of teachers, but spends a relatively large amount on instructional materials and on the mailing and handling necessary for correcting and evaluating pupils' lesson reports.

Table 7. Distribution of costs: NHK correspondence, full-time and part-time senior high schools

Categories of expense	Correspondence senior high school[1] (%)		Full-time senior high schools[2] (%)		Part-time senior high schools[2] (%)	
Instruction	76.7		79.9		79.7	
Salaries		42.2		73.5		74.8
Other expenses of instruction		34.5		6.4		4.9
Other current expenses	18.9		18.4		20.1	
Amortization (including debt service)	4.4		1.7		0.2	

1. Calculated from Table 6
2. Calculated from settled accounts for 1963 fiscal year

Expenditures for co-operating schools

The seventy-four schools which co-operate with the NHK Correspondence Senior High School are all full-time senior high schools whose teachers and physical plants are being utilized, outside of regular school hours, for short-term schooling and testing of correspondence students. The expenses of these co-operating schools are thus comparatively low; totalling $ 98,000 per year of which $ 42,000 is allotted to instructors' salaries; $ 13,000 to such expenses as rental of the physical plant; and $ 43,000 to light, heat and supplies.

These costs amount to about $ 1,320 per school.

Expenses paid by pupils

As Table 8 indicates, pupils in the NHK Correspondence Senior High School are required to pay tuition and other fees, and expenses for textbooks and study books. If radio or television receivers are not available to them, they may have to purchase receivers; and they must pay board during their periods of residential schooling. The boarding expense of correspondence students varies from $ 0.60 per day in the NHK school facilities to $ 1.50 in certain other school residential facilities. If the average student spends ten days in residential schooling, and pays $ 1.10 a day for board, his total expense for this period is about $ 11.

Very few correspondence students have to buy television or radio receivers. About 74 per cent of all Japanese households have both television and radio, and an additional 10 per cent or more have one or the other. Therefore, it is more reasonable to charge a certain proportion of the use of a receiver to corre-

Table 8. Pupils' expenses: tuition, fees and books

Type of expense	(in dollars)	Type of expense	(in dollars)
Tuition	2.80	Student society fee	.40
Correspondence fee	.60	Cost of textbooks	3.20
Learning fee	.80	Cost of study books	5.20
		Total	13.00

spondence study than to estimate how many students have to purchase receivers. If the cost of receivers is amortized over the length of a correspondence high school course (about four years), and it is calculated that the receiver will be used no more than 20 per cent of the time for correspondence broadcasts, then one can say that about 5 per cent (20 per cent times 25 per cent) of the total cost of the receiver should be charged per year to its use for correspondence lectures. The average cost of the radio receiver in Japan is estimated at $ 16, and of a television receiver at $ 116; therefore the cost of receiving radio lectures can be estimated at $ 0.80 per year, of television lessons at $ 5.80. Table 9 summarizes these costs.

Table 9. Total cost to students (in dollars)

Type of expenditure	Television students (in dollars)	Radio students (in dollars)
Tuition and fees	4.60	4.60
Textbooks and study books	8.40	8.40
Residential schooling (board)	11.00	11.00
Proportional cost of receiver	5.80	.80
Total	29.80	24.80

Needless to say, the amount paid by full-time and part-time students for transport, supplies, Parent-Teacher Association (PTA) fees, and other current expenses is much more than what these totals indicate. According to the 'National Survey of Educational Expenditures Paid by Parents, 1964', published by the Japanese Ministry of Education, the average annual current expense of a full-time high school pupil in 1964 was $ 113, and of a part-time high school pupil, $ 68. The tuition fee is $ 24.50 for the full-time student, $ 10.20 for the part-time student.

Table 10 summarizes the total costs of the NHK Correspondence High School.

Table 10. Total costs of NHK correspondence senior high school

Type of expenditure	Central cost			Cost per pupil		
	Television	Radio	Total	Television	Radio	Total
Producing and transmitting correspondence lectures	886 900	199 450	1 086 350	67.37	15.15	82.52
Expenditures for the NHK Correspondence Senior High School	638 000	638 000	638 000	48.46	48.46	48.46
Expenditures for the co-operating schools	98 000	98 000	98 000	7.44	7.44	7.44
Expenditures borne by pupil (see points below).				25.20	20.20	26.00
	1 622 900	935 450	1 822 350	148.47[1]	91.25[1]	164.42[1]

1. Assuming 13,165 students in total cost per pupil

In interpreting the table, the following points should be kept in mind:

1. The 'per pupil' figures are calculated on the basis of the official enrolment for the year beginning April 1965 of 13,165 students. For a projection of what the pupil costs would be if the enrolment were substantially increased, see below.
2. There are three kinds of pupils in the NHK Correspondence Senior High School: those who listen to the radio lectures only, those who view the television lectures only, and those who both listen to the radio and view the television. The precise division of pupils in these several categories is not known. The per pupil costs in the table have been calculated in terms of what they would be if all students used either radio or television only, or both.[1]
3. The expenditures in the table refer to 1965 except for the programme production costs, which are for 1964.

---

[1] If the proportions of radio and television indicated in an attitude survey recently conducted by the NHK school: i.e. out of 100 students, forty-nine were using radio, twenty-nine television and twenty-two both radio and television, prevail throughout the student body, then the average cost per student would be almost exactly $ 124.

4. When the fourth-year courses are offered for the first time in 1966, the central expenses will go up, but so will enrolment. It is not anticipated that the cost per pupil will increase greatly.
5. No account is taken of the fact that the NHK correspondence school lectures are used by many thousands of students enrolled in other correspondence schools. If it were possible to calculate the value of this additional service it would reduce the per pupil cost in the NHK school.
6. Tuition and other fees are not included in the expenditures borne by pupils as listed in the summary table. This is because these fees are received by the NHK school and included in the statement of expenditures for the school. Thus the sum for pupil expenses includes textbooks, residential schooling costs, and a proportion of receiver cost, but not tuition and fees.

All these costs per pupil are figures on the 1965 enrolment of 13,165. If enrolment were doubled, then all costs would rise at a rate approximately proportionate to the increase in enrolment, except the expenditures for producing and transmitting the programmes, which should be very little changed. Costs per pupil would then be reduced from $ 148.47 to $ 114.78 for a television student, from $ 91.25 to $ 83.67 for a radio student. If the enrolment were quadrupled, the cost per television student would be under $ 100 ($ 97.93) and would be within $ 20 of a radio student ($ 79.88). Thus, the smaller the enrolment, the greater the cost advantage of giving the correspondence lectures on radio; the larger the enrolment, up to a point of diminishing returns, the greater the cost advantage of broadcast-correspondence study over residence study, and the less difference there is between the cost of using television in the correspondence course and the cost of using radio.

A comparison of costs per pupil at the NHK Correspondence Senior High School with those of residential schools is clarifying. In 1963, the total cost per pupil was $ 214 for public full-time high schools, $ 157 for public part-time high schools. It is estimated that costs per pupil are about 20 per cent higher in 1965 than they were in 1963. Thus the 1965 figures would be about $ 260 for full-time high school, $ 190 for part-time schools. As has been mentioned, the student in these residential schools has a greater amount of current expense (estimated at $ 113 for a full-time high school student, and $ 68 for a part-time student in 1964, compared to $ 20 to $ 25 for a correspondence student). Thus it is clear that the cost per pupil in a broadcast-correspondence school is substantially less than in a residential school.

To be completely fair in the comparison with residential school costs, however, it must be remembered that a student is expected to accomplish within three years of resident study as much as in four years of correspondence and broadcast study. Therefore, a comparison can be made between the cost of a complete high school education (four years) in the broadcast-correspondence curriculum. For the full-time high school the cost of a complete high school education would be $ 780 plus about $ 339 for current expenses borne by the student. For the NHK school at present enrolment and present levels of cost such an education for television students would cost about $ 594, and for radio students about $ 365; both figures include the current expenses borne by the student. If enrolment were doubled, the cost would be about $ 459 for television students and $ 335 for radio students. If enrolment were quadrupled the cost would be only $ 392 for television students, $ 320 for radio students.

LESSONS OF THE JAPANESE EXPERIENCE

Effectiveness of the Broadcast-Correspondence Teaching

Although broadcast-correspondence high school study is cheaper than study in a residential high school, such broadcast-correspondence education seems to be virtually as effective. However, no scientific evidence has been found which directly compares the amount of learning from the broadcast-correspondence school with that from residential schools in Japan. Indeed, any such experiment would have to be designed with great care, because students whose grades are above the median are much more likely to go on to residential high school. Thus a comparison of student performance in the two kinds of schools without proper controls would probably compare groups of students with very different aptitudes for high school study.

Such relevant scientific evidence as exists in Japan is very favourable in regard to the amount of learning that results from radio and television classes. Although two experiments have cast doubt on the usefulness of one television programme a week used as a supplement to class teaching,[1] another experiment demonstrated rather impressively that television used over a three-month period was effective in implanting desirable social attitudes in the minds of young persons.[2] This result, of course, is the purpose of the 'Special educational activities' broadcasts in the correspondence programme. Another experiment in 1960 showed that an NHK school broadcast on social studies resulted in a significant increase in learning among grade 5 students.[3] Still another experiment employed two groups, of which one was viewing an NHK class broadcast on history and one was not. Although there were no significant differences between

---

1. Abe, K., Analysis of the Effects of Television as a Mass Communication Medium, University of Tokyo, February 1960. Ukawa, K., The Effects of Science Teaching through Television, Kagawa University, 1960.

2. Unesco, NHK, and Ministry of Education, Television Project for Youth in Japan, NHK, 1959-60.

3. Ogawa, T., Learning from Educational Television, Institute for Educational Research, Nagano City, 1960.

students in the upper 30 per cent of the two groups the lower 30 per cent did significantly better than students of equal ability taught without television.[1] This result is of interest because a large proportion of the correspondence students are thought to come from the lower half of their classes. It should be noted also that a series of experiments done by the NHK Radio-Television Culture Research Institute has shown that radio educational broadcasts are effective in teaching, among other subjects, Japanese, English, and music.[2]

The most recent relevant study and one of the few using a high school population was based upon an English test given to forty students of a high school in Miyazaki Prefecture, in 1963. Of the forty students, seventeen had been listening to the NHK English broadcasts, and twenty-three had not. Table 11 indicates the results of the test.

No information was furnished as to previous performance or aptitudes of the two groups, and therefore it would not be proper to place too much emphasis on the results.[3] But the general trend of these experiments in Japan, as in the United States, France, Australia, and elsewhere, leaves little doubt that well-planned educational broadcasts do contribute to learning.

Table 11. Results of English test: listeners and non-listeners

Subject matter of test items	Possible score	Average of listeners	Average of non-listeners	Difference
Pronunciation	10	7.1	5.7	1.4
Vocabulary	13	11.1	10.7	0.4
Comprehension of content	35	28.9	17.2	11.7
Sentence structure	42	24.5	15.3	9.2
Total	100	71.6	48.9	22.9

Unfortunately, there is no research in Japan comparing the learning that results from correspondence study with and without broadcasts. When such studies are made they will be very useful.

---

1. Osaka Educational Research Institute, A Comparative Experiment on the Learning Effects of an Historical Educational Television Programme, 1960.

2. NHK Radio-Television Culture Research Institute, The Effects of Radio Japanese Classroom, 1954-55.
   Ibid., The Listening Effects of Radio English Class-room, 1954-55.
   Ibid., The Effects of Educational Radio Music Class-room, 1956.

3. The results of this experiment were reported to the author by the National Institute for Educational Research, Tokyo.

On a slightly different level of evidence, the officials of the correspondence school point out that the standards maintained in their assignments, their tests, and their examinations, are the same as those in the residence schools, and that the correspondence students are apparently doing as well as they would be expected to do in full-time study. No comparative grade records, with or without controls for aptitude, have been reported.

The officials feel that the broadcasts in addition to the correspondence assignments seem to have the following effects:
a) they help the student to schedule his studying and do it regularly;
b) they motivate the student to higher achievement;
c) they help regularise his life and work habits in somewhat the same way as does the school day.

What the students think

Although there has been no systematic survey of students' reactions to radio and television broadcasts in connexion with correspondence study, a great many reports of their opinions come in at the annual meeting of schools co-operating with the NHK Correspondence High School. These reports contain many suggestions for making the programmes more useful - for example, 'broadcast them more slowly', 'repeat the programme', and 'broadcast period should be longer'. One of the most frequent complaints from students of schools other than the NHK school itself is that the pace of teaching at the school does not always correspond with the pace of the broadcast lectures.

Table 12 presents the results of a survey, conducted by a co-operating school in Miyagi prefecture, on the helpfulness and the difficulty of some of the broadcast lectures.

More than two-thirds of the students were apparently finding the broadcasts helpful. It is worthy of note that the lectures which they judged most difficult (mathematics) were the ones considered most helpful. Teachers report that their students find mathematics difficult to understand with the aid of textbooks and work books only; therefore, students are more likely to be grateful for the additional help that broadcasts give them, even though they find the content difficult.

The NHK school has recently made a survey of 100 of its pupils which provides some additional information on student attitudes and reactions. Of these 100 students, forty-nine were using radio, twenty-nine television, and twenty-two both radio and television. These students found classes in English somewhat more difficult than classes in mathematics or Japanese literature, and the more difficult they found a course the more likely they were to report that the pace of the broadcast was too fast. About one out of four or five of the students reported that they sometimes fell asleep or were drowsy when trying to study, because of weariness after the day's work.

Table 12. Survey results: helpfulness and difficulty of broadcast lectures (in percentage)

Comments	Modern Japanese	Mathematics I	English I	Geography	Physical exercise
As a supplement to study, broadcast lectures were:					
very helpful	21	72	21	20	24
helpful	60	21	43	44	38
not helpful	19	7	36	36	38
The content of broadcast lectures was:					
difficult	16	84	10	10	2
adequate	62	16	90	90	98
easy	22	0	0	0	0

The proportion of the students who study (as recommended) in preparation for the broadcast, according to the NHK study, is less than one third. Of those students who do study in preparation, about four times as many (compared with those who seldom or never prepare) are likely to find the broadcast 'mostly understandable'. The NHK school officials feel that such preparatory study is one of the most important keys to success in their programme.

Effect of the Broadcast

No very substantial evidence is yet available on the effect of adding broadcasts to the correspondence study. Suggestive evidence, however, comes from the 1965 report of Sapporo South High School in Hokkaido, which is a co-operating school with the NHK correspondence education. This school did not test correspondence students on their accomplishment, but asked them simply whether they thought they would be able to earn credits for their study by the end of the school term. Their answers were then classified according to whether or not they were making use of the broadcasts. The results are presented in Table 13.

In each of these courses, then, students who were using the broadcasts were more likely to be confident of passing the course. However, the direction of causation is unclear - whether the more confident students were learning more because of the broadcasts, or were making use of the broadcasts because they were more strongly motivated to learn. Yet there is at least suggestive evidence that the use of broadcasts is concomitant with better performance in the correspondence courses.

Table 13. Students' confidence in ability to earn credit: effect of radio and television

Students	Current Japanese language I	Mathematics I	English A I	Biology	Geography B
Radio users	177	143	144	91	97
(Percentage expecting credit)	52	36.4	45.8	60.4	44.3
Television users (including users of both radio and television	146	123	139	104	54
(Percentage expecting credit)	53.4	45.5	50.4	56.7	48.1
Non-users	283	282	253	164	197
(Percentage expecting credit	34.6	22.3	32.4	44.5	26.9

Programmed Learning as a Part of the Correspondence Work

The survey of 100 students mentioned above indicates that only forty-five of the students used all of a series of six broadcasts, whereas twenty-three used none of them at all. This low ratio of broadcast 'attendance', as compared with attendance at full-time schools is, of course, disturbing to the NHK school officials. Another factor which disturbs the school officials is the remoteness from the responses of students to the lessons, as well as their uncertainty as to how actively the students are studying at any time.

Therefore, the NHK school officials have thought of programmed learning as a partial solution to some of these problems. In the autumn of 1965, school officials conducted a small experiment using a linear programme on mathematics. This experiment reflected significant differences in learning gains between experimental and control groups of forty students each; and almost all the students who used the programme reacted very favourably to it. However, the officials point out that it takes a considerable amount of time to design and produce the programmes, and that many details of administration and course organization remain to be solved. Nevertheless, programmed materials may play a larger part in these courses in the future.

The Problem of Drop-Outs

Drop-outs plague every correspondence school. Correspondence study is lonely study. The students have no group motivation, no teacher to whom they have to report every day. They have no one to whom they can go quickly for a brief word of explanation or encouragement. It is easy for them to postpone assignments, and ultimately to drop out of the course.

In *Japan*, the number of drop-outs in full-time schools is very low - apparently not much over one per cent per year. In part-time schools the drop-out rate is in the neighbourhood of 10 per cent. In correspondence schools, however, when the 1961 class of entrants was surveyed, it appeared that 57 per cent had dropped out of study by the fifth year: only 6,600 were left out of more than 15,000. This is an average drop-out rate of nearly 15 per cent per year. It should be borne in mind, of course, that sometimes correspondence students withdraw for a time and then return to study. Therefore, the figures given may slightly overestimate the true rate. (See Table 14)

Table 14. Senior high school enrolment and correspondence course completions

Academic year	Full-time and part-time students	Correspondence students	Number of correspondence course completions
1948	1 203 963	9 012	--
1949	1 624 625	11 949	--
1950	1 935 118	18 265	--
1951	2 193 562	24 734	--
1952	2 342 869	28 110	--
1953	2 528 000	36 116	--
1954	2 545 254	42 930	--
1955	2 592 001	46 056	96
1956	2 702 604	49 304	191
1957	2 897 646	54 591	505
1958	3 057 190	60 517	436
1959	3 216 152	61 658	611
1960	3 239 416	65 454	787
1961	3 118 896	72 047	1 048
1962	3 281 520	79 012	1 478
1963	3 896 682	95 623	1 855
1964	4 634 406	108 454[1]	2 460

Source: Ministry of Education statistics
Note 1: This figure is about 2.3 per cent of the resident school enrolment

It is this problem that the Japanese are expecting broadcasts to help solve. If broadcasts can keep the solitary correspondence students on schedule, contribute a little encouragement and motivation, supply some of the regularity which the school day affords residential students and which correspondence students so often lack, then - at least so it is hoped - more of the correspondence students may be encouraged to persevere in their work, and the drop-out rate can be substantially reduced. Until a full four-year class has gone through the NHK school (which will not be before April 1967) it will hardly be possible to arrive at a reliable measure of the rate of drop-outs.

Preliminary figures indicate that about 45 per cent of the students admitted to the NHK school in 1963 failed to proceed, and of those who did proceed to the second year course, about 42 per cent did not proceed to the third year. Thus only 32 per cent of those admitted to the first-year course in 1963 were in the third-year course in 1965. It would be premature to say now how much of this loss should be ascribed to drop-outs and how much merely to retarded progress.

The dimensions of the problem of avoiding drop-outs from correspondence schools may be suggested by a survey of the intelligence quotients (I.Q.'s) of about 50,000 high school students in Toyama prefecture. Of approximately 33,000 full-time high school students in the general course, 71 per cent had I.Q.'s over 100. Of about 6,000 part-time students, 39 per cent scored above 100. But of 3,200 correspondence students, only 9 per cent were over 100. Thus the typical correspondence student brings to his task less native ability than does the typical resident student; he finds learning more difficult in addition to being burdened with the distraction of a full-time job. Therefore, any contribution the broadcast-correspondence combination can make to motivating such a student or helping him when he encounters difficulty will be beneficial.

Application to other Countries

Asked what lessons have been learned from the Japanese experience that should be passed on to other users of broadcast-correspondence education, officials of the NHK school made the following suggestions, which were prepared by Harufumi Kondo, assistant principal:

1. A complete survey should be made of the level of scholastic attainments and understanding of those who are to be educated, before preparing for their education.
2. The following information should also be acquired:
   a) How many hours a day the students can devote to listening or reviewing (it is estimated that the students at the NHK Broadcast-Correspondence High School can set aside for that purpose from two hours and a half to three hours a day on the average).
   b) How much they can be expected to learn in a year.
3. Both the educators in charge and the broadcasting organization should confer and co-operate in each of the fields of study. Although fixing the boundaries of their respective responsibilities, they should, at the same time, work together to carry out effectively the educational activities in a unified and integrated manner.
4. The educational programme to be broadcast should be compiled for the whole year in advance; and the content of each of the programmes should be outlined for the students in a concrete form before the course begins.

5. In broadcast education, it is impossible to find out directly whether or not the students can understand what is presented to them. Consequently, it is necessary to analyse constantly the reports submitted by the students and any other responses, in order to realize what part of the lessons the students could or could not understand, and thus to improve the broadcasts.

6. Efforts should be made to acquaint the students thoroughly with the schedule of broadcast materials.

7. The educational field to be covered by the broadcasts should be clearly defined. It is also necessary to determine what is most essential in each field of education as well as to discover and to clarify the extent to which each of the following fields should be covered: industrial techniques, culture or school education.

8. The most essential requirement is constantly to show interest in the students and to give them words of encouragement with patience and reflexion.

9. Consideration should also be given to the organization of groups who study jointly and of places where such groups can listen to the broadcast together. Many students seek such a place and also seek the advice and guidance of the teachers, seniors and leaders.

10. The broadcast education should be conducted emphatically and systematically, because less systematic treatment might result in giving the students too little guidance and, thus, in leaving them helpless.

11. In broadcast education, it is necessary to summarize, at the end of each programme, the essential points which have just been studied so that students will be aided in remembering clearly the things they have learned. This review will serve at the same time to encourage friendly sentiments toward the broadcasters even if the students cannot ask questions directly.

12. It is desirable, if possible, for the educators who broadcast to visit the groups of students who use the broadcasts, to meet them face to face. This personal contact will help the students to feel much more friendly toward the broadcasters, and also will aid in the preparation of future broadcast lessons.

POLITECHNIKA TELEWIZYJNA, POLAND

I. General Facts

The structural changes in the Polish social system and the requisite re-formation of Poland's economy have led to a continually increasing need of executive and management personnel, which in turn results in new demands made of the educational facilities at university level.

In spite of the growing number of university graduates (the number of students and graduates of the technical universities has increased by five times between 1937/38 and 1965/66), it can be forecasted that the existing facilities will meet only 70 % of the need of the economy between 1966 and 1970, and only 80 % between 1971 and 1975.

In view of this shortage and in accordance with the generally-acknowledged principle of equal educational possibilites for everybody, the Polish government initiated an organization for extramural educational facilities in 1948.

These courses in further education, which are run by the universities or the technical universities, consist mainly of evening or correspondence courses. Anybody can participate, who holds the requisite qualifications, and has been in employment for at least 1 - 2 years, according to the subject in question. Participants must have the permission of their employer, as the employers contribute greatly to enabling the students to participate. Every employee participating in a correspondence course is entitled to 21 additional and paid days off from work, so that he can attend the group meetings organized by the universities. The employer must also pay for the travelling expenses to and from the university meetings. Similarly, participants in evening classes are entitled to 14 paid hours off from work every week. In addition, they receive a paid holiday, in order to prepare and sit for the exams.

The number of people in employment participating in these courses is very high. By 1963, 62,266 persons had received a university diploma after having attended the courses. This figure equals 16.4 % of all university graduates in Poland from 1945 to 1963.

However, this educational facility for people in employment has met with certain difficulties. For example, the number of qualified teachers is far too small to cater for the needs in the field of university education.
Furthermore, the network of evening class institutions is not dense enough, and the establishment of consultation centres is often impeded by the shortage of suitable teachers.
Correspondence courses, in turn, present the students with substantial difficulties; their motivation tends to decrease rapidly, so that the number of drop-outs is very high.

This situation, which prevails in the entire field of university education, is especially noticeable in technical studies. On the one hand, this faculty represents the nation's most urgent need, on the other it arouses great interest among the employed public. Consequently, approximately 40 % of the employees wanting to commence studies in a technological subject have to be refused every year, owing to the lack of places and teaching staff. These limitations, which are induced by the traditional teaching methods, lead to a search for new techniques, which are to fill the existing gaps. Television, for instance, has already proven its importance as an ancillary pedagogical means in elementary teaching and further education, and it is thus quite clear that attempts have been made to gain the cooperation of TV in technological studies at university level.

II. The Development

In 1965, the Minister of University Education appointed a working party to design a system for the application of television in extra-mural further education in technical subjects. He was stimulated in so doing by the Polish television authorities. Moreover, the situation was improved through the introduction of a uniform curriculum for the first two years of technical studies at university level. This uniform curriculum is coustituted by the course "Fundamentals of Technology", which represents a joint basis for all specialised courses.

UNESCO played an important part in this stage of planning, as the organisation showed great interest in the project. A convention was drawn up between the government of Poland and UNESCO, according to which UNESCO is prepared to support the project with technical equipment such as cameras, etc., and to publish evaluation reports on the project.

After the said convention had been made, the Minister of University Education appointed a commissioner to examine the possible usage of television in university education.

The aims of the project were formulated in the following way:

(1) Television is to be incorporated into the first two years of technical studies in the framework of the extra-mural system, i.e. into the course "Fundamentals of Technology".

(2) The function allocated to television will have several aspects:

(a) to supplement the teaching facilities provided by the evening courses, through presenting the most difficult subjects and in this way elaborating the course for the students.

(b) to provide the correspondence course students with lessons substituting normal classroom teaching. The three-day school sessions, in which the students must participate once a month at the technical universities, could then assume a more facultative character, thereby eliminating the tiring journeys the students have to make.

(c) to require a definite rhythm of work of the students, and to induce them to study more systematically.

(d) to promote the participants' motivation, in so doing cutting the number of drop-outs.

Television also enables prospective participants interested in the courses to appraise their ability correctly, as they can follow the courses without being forced to enrol or to admit that the material presented was too difficult, so that they had to give up.

(3) To promote education by means of the multiplication effect of television, the programmes of which can be received by 80 % of the population of Poland. Many employees living in areas too far from the next university, who could therefore not take part in further education courses, are nevertheless able to continue their education at university level. Thus, this enterprise corresponds to the principle of equal educational possibilities for all.

(4) To arouse the interest of expansive segments of the population and to reach a higher standard in the subjects treated. It is assumed that the projects also appeal to a large marginal audience.

III. The Organisational Structure

The operation of the project was prepared jointly by the Ministry of Education and the State Committee for Radio and Television. Whereas the Ministry is responsible for the contents of the courses, the accompanying material and the organization of the viewing centres, the State Committee for Radio and Television, which is represented by the Department for Educational Programmes, assumes the production and transmission of the courses. The entire project is coordinated by the commissioner for the usage of television in university education, who acts on behalf of the Ministry. The commissioner is assisted by an advisory board consisting of 12 experts, some of whom represent the governmental departments participating in the project. The other members are professors with experience in adult education, representatives of the television authorities, and a permanent secretary. The board convenes to discuss all questions relating to the application of television in technical studies.

Apart from this advisory board, groups of experts are assigned to develop the programmes and the contents of the subjects presented on television. Furthermore, these groups make suggestions pertaining to professors and specialists thought suitable to give the courses. However, the final decision as to the engagement or non-engagement of these professors, etc. is left to the television authorities.

During the planning and production stage, the Inter-University Institute for Research in the Field of University Education was requested to examine the methods used for the TV courses, and the contents of the programmes. For this purpose the institute formed a study group, the members of which are sociologists, pedagogues and psychologists. The examination itself was intended to provide information on the following:

(1) The advantage of television teaching, as seen from the viewpoint of the student.

(2) The objectivation of the results (varying grades in exams).

(3) The level and the modus of presentation of the television courses.

(4) Possible differences in opinion between the professors and the organizers of the television courses.

(5) Groups of the audience viewing the television programmes, other than the regular students.

In order to facilitate the examination and to help the teachers to integrate components of the television courses into the courses for people in employment, the department for technical studies in the Ministry of Education has set up 15 consultation centres in some of the largest factories in Poland. This step was taken in agreement with the institutions for university education. The Ministry of Education equipped the consultation centres with TV sets, and the universities in the respective provinces appointed professors to teach there.

As was already mentioned before, the State Committee for Radio and Television, which is represented by the Department for Educational Programmes, is responsible for all technical aspects of the project, i.e. for production and transmission of the programmes.

In this respect, two difficulties were encountered: First, the shortage of recording devices compels the professors to be present at the broadcasting studios for all programmes and repetitions, which are broadcast live. Second, the technical means and facilities offered by the Warsaw radio and television station are insufficient: This station is not able to take over the transmission of the programmes, so that they have to be broadcast by the regional stations. Accordingly, the TV station in Wroclaw which is the Polish centre for mathematics, broadcasts the courses in this subject, whereas the other subjects are transmitted by stations located in the university towns of Krakow, Katowice and Gdansk.

IV. The Conditions for Participation

The conditions underlying participation in the television courses are the same as for other forms of university education for people in employment. Candidates must have passed the Polish equivalent of the GCE "A-Level" (Junior College Leaving Certificate) in the mathematic subjects, they must further have been employed full-time for at least two years in a profession linked with their future studies, and they must have their employer's permission. This last requirement gives the participant the right of claiming the paid break for study purposes mentioned before, which is stipulated by law.

Candidates are advised to register at the nearest university organizing the correspondence courses. Nevertheless, persons who have not enrolled still have the possibility of sitting for the exam held at the end of the first year, which enables them to enter the second year, provided they pass.

V. The Structure and Contents of the Courses

A. The "Small Pilot Project"

The pilot project as such was preceded by a series of experimental courses, here termed the "small pilot project", which was aimed at examining both the teaching methods and the production methods. This project did not deal with the material treated in the following two-year course for technical studies at university level, but was concerned with the material treated in the exams which the candidates for technical universities must pass on enrolling. In other words, this was physics and mathematics at GCE "A-Level" standard.
The courses were broadcast from February to June 1966, in a sequence of one 30 minute programme a week in each subject.

All these programmes were broadcast twice, on the one hand to avoid difficulties in schedule, on the other hand to give students progressing more slowly the possibility of repeating the material presented. Thus, the entire curriculum was made up of 20 lessons each in mathematics and physics.
The project was announced to the potential participants on television, which broadcast a bulletin on the future courses and their purpose, and regularly made announcements after the news. Thus, interested persons were able to acquire the accompanying material from the suppliers of the correspondence course books. This material consisted of two manuals on physics and mathematics, published by the "Press for Science and Technology" for usage at technical universities. In addition, this publishing house provided a "Guide for Applicants of a Further Education Course for People in Employment", which contained information on the television courses, on the conditions for enrolling in extra-mural courses, a list of the existing courses and the design of their programmes, practical advice, a summary of the knowledge in mathematics and physics required for the enrolment exam, and the detailed curriculum and schedule of the television courses. This manual was mailed to all interested persons at the beginning of January.

Furthermore, the students had the possibility of participating in group work in one of the viewing centres under the supervision of a tutor, apart from having the benefit of the TV programmes and the accompanying material. Within this process, the tutor first viewed the programmes together with the students and then gave a 45 minute lesson devoted to answering questions and clarifying difficult points. The tutors, who all have experience in adult education, are recruited from the ranks of academic assistants at technical universities.

In general, the work done by the consultation centres is linked to the preparatory courses, which are organized either by the technical central association, by the union of socialist young people, or by the local authorities.

The number of participants exceeded all expectations, and 56,000 people purchased the students' guide.

Thus, this project was purely experimental and was merely intended to eliminate in advance certain sources of error in realising the actual pilot project.

An extensive examinatory survey was conducted parallel to the preparatory courses run on television, the results of which we shall deal with in another part of this report.

B. The Actual Pilot Project

The actual pilot project, i.e. the usage of television for broadcasting the curriculum of the first two years of technical studies at university level for people in employment, was launched, as planned, in September 1966.
The public was informed hereof through several channels. The television authorities organized discussion sessions with representatives of the Ministry of Education and of televison, apart from the announcements made on TV after the news. The said discussions were intended to explain the purpose and advantages of the project, and to propagate the conditions for participation. The regular announcements were also broadcast by radio. Factories took part in the promotion campaign by putting up posters and distributing informatory brochures. Furthermore, articles were published in various newspapers, and the "Technical Journal" agreed to publish the programme of the courses every week.

As already mentioned, the responsible authorities did by no means intend to broadcast the complete curriculum of the first two years of the course "Fundamentals of Technology", especially as the broadcasting time available was not even sufficient for this purpose.They intended rather to limit the television transmissions to the most difficult subjects, which could otherwise only be mastered by the students of traditional correspondence courses with utmost effort. In addition, these subjects prove most difficult for the less experienced evening class teachers.
Accordingly, two subjects otherwise compulsory for the courses run in the first year of studies, namely economics and foreign languages, were not included in the television programmes. Another reason for this exclusion of the said two subjects is the fact that Polish radio broadcasts courses in foreign languages regularly.
The curriculum and its various components were split up in the following way:

(1) The Television Courses

In the first term, these courses included 45 lessons in mathematics, 16 in descriptive geometry and 16 in chemistry. In the second term, the courses consisted of 37 lessons in mathematics and 54 lessons in physics.

This curriculum was repeated in 1967/68, in conjunction with the courses of the second year of technical studies. These courses consistet of 54 lessons im mathematics and 36 lessons in physics in the third (half-year) term, and 24 lessons in physics, 27 lessons in the strength of materials, and 30 lessons in electronics in the fourth term.

The contents of these programmes was determined by specialized groups in the Ministry of Education. The groups provide the respective professor with the subject matter of each course and a short summary of the material to be presented.

The professor, in turn, has the task of developing the course and establishing contacts with the people and offices making the illustrative material he requires for his programme: (drawings, model charts, trick films, film excerpts, live-experiments, etc.)

The teachers giving the courses are outstanding scientists, but do not in general have any knowledge of the specific possibilities of presentation offered by television. Thus, the professor is required to resort to the advice of a television producer or of an expert on audio-visual techniques, and to discuss with him how the lessons and the illustrations can possibly be adapted to the specific needs of television.

As soon as the final copy of the script has been accepted, and the illustrations have been selected, all the requisite visual elements are produced at the television studio. Before the course is then broadcast on television, it is repeated again in order to assure that the broadcasting time available is not exceeded.

This elaborate preparation is the reason why a professor is scarcely able to give more than 10 television programmes per term. However, the courses were split up into "blocks", in order to avoid an imparity in the learning effect induced by too frequent a change of professors. One block is always given by one and the same professor. In addition, the television producers are assigned to make a series of courses as homogeneous as possible, by making sure for example that all professors use the same symbols.

In order to make the professors acquainted with their new method of work, the television authorities hold meetings when the first programme in a given subject is broadcast, in which all professors lecturing in the subject in question participate. After having viewed the programme, they can discuss various points of the method of presentation with the professor who gave the lesson.

As we already stated at the beginning of this report, Polish TV did not have the requisite technical means to record the programmes. Consequently, the professors had to go to a studio to give their course live. They are therefore obliged to appoint a substitute who could give the course in their stead, so that mishaps due to illness or other factors of "force majeure" are avoided.

During the week, the programmes which last for an average of 30 minutes are re-broadcast the same evening: They are first broadcast in the afternoon, when people in employment have already finished work, and can thus view the course. The programmes are then repeated late in the evening. Courses transmitted on the weekends are not re-broadcast.

After the courses had been revised, Polish TV was in the second year of operation (1967/68), able to start recording some of the course series presenting the material of the first two terms. The advantages offered by such recordings are obvious: The professors do not have to be present in person when the programmes are broadcast, the copies of the films can be placed at the disposal of the technical universities for their day courses, and the economy of the project is increased, etc.

Let us come back to the contents of these programmes: We have already mentioned that television only broadcasts some of the compulsory subjects within the framework of the "Fundamentals of Technology" course, and that it is limited to the most difficult points in these subjects. In fact, the TV courses only provide 30 % to 80 % of the material in the courses treated. Thus, there can be no doubt that the courses must be supplemented by other teaching methods.

(2) The Accompanying Material

This material has several functions and can be split up into various categories:

(a) The manuals offer the entire material presented in a subject, in this way supplementing the television lessons.

The television courses necessitated absolute standardisation of the manuals. Thanks to the great propagation of the manuals, it was possible to assign a centralised publishing organisation with the production, the "PWN" (State Press for Scientific Literature). The manuals do not, however, serve solely to supplement the television lessons, but also contribute to uniformity of a course series in one subject, despite changes within the teaching staff.
The students can either buy the manuals in book shops or straight from PWN.

(b) The programme scripts are published whenever the text in the manuals deviates too greatly from the actual lesson.

(c) As it is not possible to provide more than model exercises in the programmes themselves, and as only examples of the solution methods for the exercises can be given, it has proved necessary to supply the participants with exercise books together with a key.
By means of these books the students are able to study actively and check their progress themselves. The students are required to subscribe to the exercise books, which are distributed by the book shops.
Nevertheless, this self-checking factor can by no means replace group activities, in the course of which the participant benefits from explanations, advice, and corrections provided by the teacher.

(3) The Group Activities

The authorities responsible for the project are of the opinion that the best possible form of application of the television courses is its integration into the evening courses for people in employment. However, the application of this method is opposed by numerous difficulties: it is only profitable for persons living near a university. Furthermore, there are not enough teachers to meet the need of comprehensive evening courses.
However, other forms of participation are also possible, which differ mainly by the intensity and frequency of group work.

(a) The best results have been achieved in the consultation centres set up on the premises of factories. Here, the participants view the programmes in groups.
In this way, they can derive a profit from supervision by a qualified teacher, and can elaborate the knowledge acquired immediately after the programme has been broadcast.

(b) The consultation centres also organize seminars for the isolated students, which last for an average of three days. As the students are entitled to three days holiday a month, they are then able to clarify all doubts, which may possibly have arisen in the course of the preceding weeks.

(4) The Correspondence Course

As, however, this periodical help proved insufficient to effectively support the efforts of the isolated students, the universities have established correspondence courses for them. We have already stated at an earlier point that correspondence teaching represents a substantial element in the endeavours to institute a teaching system for adults at university level. In fact, it is the correspondence courses that induced the Ministry and the televison authorities to launch the experimental project.
In future, correspondencecourses are also to be supplemented by radio programmes. The subjects requiring a lesser visualization effect will be broadcast by radio.

It should not be forgotten at this point that the students in the first two terms are not obliged to enrol officially for the courses, and can thus view them without participating in the correspondence courses or the group activities. Nevertheless, this method does not appear to shed any satisfactory results, except in the case of very talented students. Such students are then able to sit for the exam at the end of the year, and to enter straight into the second year.

(5) The Examinations

Students viewing the television course "Fundamentals of Technology" must take the same examinations at the end of the year as their counterparts attending technical universities. These universities are responsible for the organisation of the exams. The students must go to the nearest university in order to sit for the exams.
The exams are made up of a written and an oral part. Participants having passed can move up to the following year of study.

In this way students having completed the two-year TV course "Fundamentals of Technology", can continue their studies at a technical university and receive their engineering diploma after two more years.

C. The Expansion of the Project

The experience made during the first two years of the television courses has shown that a number of persons meeting the conditions for enrolment, who would like to take the entrance examination for courses at technical university level for people in employment, must first refresh their knowledge of mathematics and physics by attending preparatory courses, so that they can have a reasonable chance of success.

It should be noted in this respect that almost all the candidates have passed the equivalent to the GCE "A-Level" (Junior College Leaving Certificate) several years ago. Moreover, some of them did not attend a secondary school specialised in mathematics and physics and must therefore "catch up" with their backlog in these subjects.

Another factor which cannot be overlooked is the fact that it is an aim of courses in further education for people in employment to offer the working class the possibility of attaining higher education, from which they had hitherto not been able to derive a profit for various reasons, such as lacking motivation, etc. However, it turned out that the standard of these candidates is often lower than that of the others, which is not due to their social origin, but rather to the fact that schools in small communities do not have as good a teaching staff as those in large towns. This obviously results in shortcomings, which often lead to failure or at least poor results in the entrance examinations of the technical universities.

For this reason, preparatory courses are run regularly by various organizations. However, the success rate is still low (approx. 20 %), as the candidates do often not have enough time to attend these evening classes. In consideration both of these various factors and of the experience gained through the small pilot project, the Ministry of Education decided in agreement with the State Committee for Radio and Television, to broadcast television courses beginning parallel with the 1968/69 school year, which prepare candidates for the entrance examination of the technical universities. This preparatory curriculum consists of 80 courses both in mathematics and in physics, the accompanying material to which is mailed to all persons interested.

Meetings of the participants taking place once a month have also been provided for, so that they have the possibility of receiving additional explanations from the teacher supervising these meetings.

An intermediate examination is scheduled for the end of the first term. All courses aim at the entrance exam of the technical universities.

IV. The Evaluation of the Various Projects

We already mentioned at the beginning of this report that the Inter-University Institute for Research in the Field of University Education has been assigned to evaluate in detail all the stages of the project. Some of the results of this evaluation are already available as a UNESCO publication.

A. The "Small Pilot Project" (Spring 1966)

This evaluation took the following factors into consideration:

(a) sociologial composition of the television student body

(b) motivation and counter-motivation

(c) evaluation of the programmes and the television teaching methods.

(d) degree of effectiveness of television teaching.

Several inquiries were made within the various stages of the project, by means of questionnaires: Initially, these were sent to all the purchasers of the manual (57,864), and then to sample groups of participants. The representativeness of this selection may be queried when considering that only a certain percentage of the persons receiving a questionnaire did, in fact, fill in and return it. Thus, it can be assumed that these students are more strongly motivated than those who did not fill in the answers: However, a comprehensive analysis of the results can eliminate these doubts and permit generalisation of the conclusions drawn.

(1) The Sociological Composition of the Student Body

Of the 57,864 persons, who ordered the manual, 38,981 (equaling 67.4 %) had the qualifications required for participating in a course for technical studies at university level.

Of the 38,981 qualified persons, 36,106 lived in towns (of which some 50 % lived in large towns), whereas 2,875 lived in rural areas.
A second survey related to a group of 5,686 potential candidates. This survey shows that a majority of the candidates work in industrial enterprises (67.9 %), and that the rest are divided into professional groups such as: Agriculture and forestry (3.1 %), trade (1.6 %), teaching, science and culture (5.2 %), health matters (1.1 %), administration, political organisations and associations (6.4 %), and other sectors (11 %). 3.7 % of the people questioned did not make any exact statements as to their occupation.

Most of the candidates, i.e. 53.2 %, were between 30 and 39 years old, 32.5 % were between 21 and 29, and 13.7 % were 40 or more. 0.6 % of the selected group of candidates did not state their age.

All candidates must have the Polish equivalent of the GCE "A-Level": A large number of the people questioned had passed this exam 12 years or more before starting the courses (42.1 %), 26.1 % had passed between 8 and 11 years earlier, 16.0 % 5 to 7 years before, and 15.5 % 3 to 4 years earlier.

From an ecological viewpoint, it is interesting to compare the places of birth and residence of the participants: 59.4 % were born in rural areas, but only 10.8 % still live there today. 38.7 % live in towns with more than 100,000 inhabitants, 23.7 % of the students live in towns with 20,000 to 100,000 inhabitants and 27.1 % live in towns with a population of less than 20,000.

A survey conducted on the basis of another sample group of participants shows that 92.1 % are male, 79.5 % are married, and 70 % have at least one child.

In addition, 36.7 % of the people questioned stated that their parents had an incomplete elementary school background, 49.5 % said that their parents had completed elementary school, 5.2 % stated that their parents had attended, but not completed, secondary school, 5.7 % of the students had parents with a completed secondary school education, and only 1.3 % had parents with a university background. 1.8 % of the people questioned made no statements.

48.9 % of the candidates questioned were working in a position superior to that of an advanced technician, 30.6 % were technicians or on the same level, and 13.9 % were below this standard. 5.2 % were employed in a position normally limited to university graduates.

(2) Motivation

In the course of the surveys, questions were asked in relation to the motives inducing the participants to continue their studies despite the existing difficulties.

The results hereof underlined the significance of social motivation. The desire for greater social security takes first place; it was named by 76 % of the people questioned. 64.2 % participated in hope of a more interesting occupation, 48 % in hope of a higher income, 46.7 % in order to reach a higher social standing, and 56.2 % participated to expedite their vocational advancement. These figures were confirmed by the answers to a second question, which placed motivation in a more personal light.
The evaluation of the counter-motives merely confirmed the role television can possibly play in the field of extra-mural education for adults. The majority of the people questioned gave the following arguments in opposition to participation: lack of time, and their incapacity to study consistently after such a long break. Television, which saves the participant unnecessary journeys, and compels him to adhere to a definite rhythm of work, is suited to eliminate these counter-motives to a great extent.

(3) The Students' Opinion on the Teaching Effect of the Television Courses

The various surveys conducted showed that almost all of the participants were satisfied with the broadcasting times of the courses. A few of them viewed both the course and the re-broadcast (13.1 %), mostly for technical and organisatory reasons (for instance owing to the fact that they did not have a television set at home).

The majority of the students were not able to exploit the benefit of group viewing or group work in the consultation centres (73.3 %). However, most of them had wished originally to profit from this method of elaborating knowledge in a given subject. (60.7 % of the students working at home.)

An opinion poll relating to four programmes taken from the framework of the entire course indicated that 90.4 % of the students termed the topic of the programmes as "well-selected", and that 87.2 % of the participants stated that the programmes "helped them to understand the problem better". A very small group considered the courses to be worthless (5.9 %), or did not receive the support they had hoped for (8.4 %).

The rhythm of the courses was appraised less favourably than their contents: 6.4 % of the participants were of the opinion that the rate of progression was correct, whereas 23.4 % said it was too fast.

In respect to the length of the programmes, 67.5 % of the students stated that they were too short, while 27.7 % considered them to be exactly right. A few people (0.6 %) said that a programme lasting 30 minutes was too long.

These statements vary according to the modus of viewing the programmes. Students watching them in groups regarded the standard as satisfactory, but considered progression to be too fast and the programmes too short, to allow a genuine profit to be derived from the exercises offered.

A survey conducted as to the opinion of the TV students on the teaching effect of the television programmes has shown that the students profit more from the clear and understandable treatment of a question (36.3 %), and from practical demonstration (33.5 %), than from the personality of the professor (29.2 %). A more precise analysis has made evident that the students do apparently not only derive an advantage from the way in which a question has been treated, but that the fact that this question has been depicted in a better way helps them a great deal. The overall percentage of students who gave this answer was 40.4 %, of which 23.1 % stated only this special factor.

As, on the other hand, the quality of presentation depends on the professor, his personality becomes an element of primary importance.

It is also interesting to note that the isolated participants have a better opinion of the didactical value of the programmes than the group participants.

(e) The Impact of the Television Courses on the Degree of Success in the Entrance Examinations

A survey was carried out among a sample group of 721 candidates, of which 52.4 % were male. All of them were more than 19 years old; the largest group was made up of 23 - 26 year olds (30 %), followed by the group of students of 30 years of age or older (24 %).

Contrary to expectations, it proved impossible to determine a direct relation between participation in the television course and success in the exam: 68.1 % of the candidates having viewed the courses passed the exam, as compared to 67.1 % of the candidates who did not participate.

It would, however, be premature to assume that the television courses have no influence whatsoever on effective preparatory work for the exams. The students themselves have confirmed the effectiveness of television in this respect. Nevertheless, the final result of the preparatory work is not determined by the TV courses alone, but also by the lapse of time between leaving secondary school and starting to study, by the intensity of the students' personal efforts outside of the television course, and by other similar factors.

This was the reason why older students, who had a profession taking away a lot of their time and energy, only achieved relatively poor results despite the help of television, whereas the results of younger and less talented students were influenced positively by the television courses.

B. The Actual Pilot Project

The Inter-University Institute for Research in the Field of University Education also conducted surveys and evaluations similar to those described above, in connection with the actual pilot project. These surveys were supplemented by the inquiries as to the marginal audience of Politechnika Telewizyjna, which have been made by the Research Centre for Public Opinion and Programme Evaluation. The results of this evaluation are not yet complete, but the following summary can be made on the first year of the courses:

(1) The Sociological Composition of the Student Body

A great number of the participants are recruited from the rural population or the working class (77.6 %).
Just under 10 % of the student body is made up of women, two-thirds of whom are not married. By comparison, half of the male participants are married.
The largest group is that of the 20 to 25 year olds (47 %), 25 % of the students are 25 to 30, and 28 % are more than 30 years old.
About half of the participants (50 %) live in towns with more than 100,000 inhabitants, only 8 % live in rural areas, and 16 % in towns with less than 20,000 inhabitants.
It is, however, interesting to note in this connection that 40 % of the students were born in rural areas.
Surveys concerning the standard of education of the parents led to the same results as in the preparatory course (approximately 75 % had only an elementary school background, either complete or incomplete).
However, all students naturally have the equivalent of the GCE "A-Level" as this is required for participation. 80 % have "A-Levels" in technical and mathematical subjects, and only 20 % have "A-Levels" in Humanities or modern language subjects.

In addition, 30 % of the participants questioned finished their secondary education with the help of evening classes or correspondence courses. 35 % of the students passed the secondary school leaving exam (cf. "A-Level") 2 to 5 years before entering the courses, and 25 % left school more than 10 years earlier. Division into professions is similar to that in the small pilot project. 18 % of the student body hold a position not necessarily requiring secondary school education. 30 % have a position for which secondary school education is sufficient. 25 % to 30 % are occupied in professions for which university education is desirable, but not abso-

lutely necessary, and 5 % hold a position for which such a background is required.
The conditions under which the students study at home, are termed as "satisfactory" by 40 %, "acceptable" by 45 %, and "average" by 15 %. In this connection it should be noted that 75 % of the participants have a television set of their own.

(2) Motivation

This point was already dealt with in the surveys regarding the small pilot project.

(3) The Function of Television as One of the Carriers of Technical Studies at University Level for People in Employment

Only a few of the technical universities have adapted their schedules to the television courses, so that the majority of regular university students wanting to derive a benefit from the programmes must watch them in the evenings (11 p.m.) or on weekends.
Only 20 % of the people questioned viewed the courses in consultation centres, which is mostly due to the small number of these centres. However, of these 20 %, 70 % attend the centres for all courses.
It is interesting to note that 60 % of this group of the student body stated that they would probably not have been able to follow the courses without the help of the tutor.

The number of students attending the centres dropped greatly on Sundays, which appears to be because of the fact that the participants wanted to spend this day with their families.

Of the other students, only 50 % regularly attended the weekend seminars held at schools.

(4) Participation in the Television Courses

Only 10 % to 15 % of the students view the TV courses systematically, whereas 30 % to 35 % view the programmes in certain subjects regularly. 40 % to 50 % of the people questioned only watch the courses now and then, while 5 % to 10 % admit that they never do so.
However, it appears that irregular participation is to be found mainly among evening class students, who thus participate in traditional direct lessons. Furthermore, the participants living in rural areas or in towns with less than 20,000 inhabitants, and the single students, view the programmes more regularly than the other groups. This also applies to students over 30 years of age. It has also become clear that students with a good "A-Level" pass study better than the others, which is evidently due to greater motivation.

Naturally, numerous other factors also affect regular participation in the television courses (profession, personal conditions, etc.), but the surveys carried out so far do not allow any concrete statements on these points to be made.

(5) Appraisal of the Television Courses by the Students

A survey has enabled the role allocated by the students to the various elements and factors, which are of significance within the framework of the courses, to be determined. This survey showed that the participants considered the following factors to be absolutely necessary in order to reach high quality courses: good and clear speech of the professor, a clear sequence and illustrative presentation of the problems, and practical examples of the solution methods of the sample exercises. The most frequent objections, which were even made in the best courses, related to progression, which does not follow that of the technical universities and is termed "too fast".

(6) Preparation for the Television Courses

The students must prepare the TV courses systematically, in order to derive the greatest advantage from them. Nevertheless, a survey has shown that most of the students never prepare for the television courses (52 %), or only do so now and then (33 %). In other words, only 15 % of the participants do prepare for the courses systematically. The factors influencing regular preparation are the same as those which occurred in the participation in the courses.
In this connection it must not be forgotten that 50 % of the students state that they revise the programme immediately after it has been broadcast, with the help of the manuals. 45 % of the participants do the same on the following days. Only 25 % do not start work until shortly before the examination takes place.

(7) The Degree of Effectiveness of Television Teaching

The results of the surveys pertaining to this point have not yet been evaluated. However, we hope to be able to include them in the final edition of this compendium.

(8) The Potential Audience in Technical Studies at University Level, Broadcast by Television

The Research Centre for Public Opinion and Programme Production has carried out several surveys, in order to determine the exact number of television course viewers and the composition of the audience.

It is assumed that a large marginal audience averaging 170,000 persons, watches the courses either occasionally or regularly. This audience can be split up into the following groups: Teachers, technicians, engineers, and scientists, who all watch the courses in order to refresh their knowledge or to learn new techniques. In addition, there are the students and pupils of technical universities, colleges, etc., who view the courses in order to support their studies.

THE BOSTON TV HIGH SCHOOL

1. General Facts

In the USA 53 million adults between 25 and 65 and 7 million young people from 18 to 25 have left High School prematurely in the past. In other words, all these people have discontinued their school education, without having taken a final exam. Although the average life income of High School graduates is approximately $ 75,000.-- higher than that of students having left High School prior to final graduation, only a small percentage of the millions of men and women without graduation return to the adult education institutions in order to catch up with their schooling, so that they can occupy high and better-paid positions, once having received their High School Diploma. The main reasons for this are that a great number of these people do not have enough time to attend the evening classes and weekend courses run by the adult education institutions, that there is a shortage of such institutions and that many adults in employment do not feel "at home" in a school, with its characteristic atmosphere.

In order to eliminate the crucial shortage of adult education institutions which prepare their students for the High School Diploma or a comparable final exam, and to create an atmosphere of study more pleasant for a student in employment than the conventional facilities (in this way establishing a possibility for advancement and social rise for all interested people), an educational television programme was conceived and produced. Within a period of three months, this TV programme prepares its students for the "General Education Development" (GED) test. Almost all the states in the USA and all the local educational authorities provide anybody who passes the GED-test with a certificate, which, in respect to its qualifications, corresponds fully to the High School Diploma. The GED-test was devised by the American Council on Education - the supreme educational authority in the USA. Experience made in Los Angeles, Chicago, and New York City shows that an average of 4 out of 5 students viewing the TV High School courses and doing the homework related to these courses pass the test in their first attempt and thus receive the High School Certificate.

This successful operation of the TV High School led to the commencement of the same project in Boston in 1968. The project was commissioned by the Greater Boston Labor Council, by the US Office of Economic Opportunity, and by the Massachusetts Department of Education, Bureau of Adult Education and Extended Services. The TV courses are designed and produced by the Manpower Education Institute in New York, a non-profit making organization financed by the trade unions and the employers' federations. The WGBH Television Station in Boston was provided with video-recordings of the TV courses free of charge. The courses are broadcast on Channel 44 of WGBH Television Station.

The project is financed almost completely by the three commissioning organizations named above, and by the Educational Television Foundation of WGBH. Anybody living in or around Boston, having completed elementary school and being able to read and more than 19 years old, is able to enrol for studying at the TV High School.

When conducting the operation of the Boston TV High School, experience made with similar projects in Los Angeles, Chicago and New York was evaluated. Knowledge gained from the Chicago TV College was resorted to, for organizing the students' work following the TV broadcasts.

2. The Courses

The TV High School provides 5 courses, consisting of 12 thirty-minute programmes each. In other words, the TV High School includes a total of 60 course units. The subjects are: English Grammar, General Mathematics, Social Studies, Natural Sciences, and Literature. A thirty-minute programme is broadcast daily from Monday to Friday at 6 p.m. The TV High School courses last three months in the whole. The first series of courses in Boston began on September 23, 1968 and lasted until the middle of December.

Each of the 5 courses was prepared and carried out by a highly qualified teacher; all of the teachers at the Boston TV High School also play an active part in adult education work. The four principal objectives of the TV High School courses are:

1) to provide the most essential concepts necessary for understanding the 5 subjects;

2) to provide the ability to master the English language in writing and orally, and to solve day to day problems quickly and in the best possible way;

3) to make the students acquainted with the requirements of the GED-test and to prepare them for the test;

4) to arouse and stimulate an interest in education and training, and to lead the individual to independent study, so that the students remain intellectually active even after having received the High School Certificate and get a positive attitude towards further education.

The Bureau of Adult Education and Extended Services and the WGBH Television Station are the main institutions responsible for the organization and operation of the Boston TV High School. Potential students interested in the TV High School can register at the headquarters or the branch offices of the Bureau of Adult Education and Extended Services. The final exam, i.e. the GED-test, can also be taken at the headquarters or at the branch offices at several dates during the year. This final exam is a written test. The test is conceived objectively, in other words the examinee must answer a list of questions on the various subjects, for which he is given a selection of answers including the correct one for each respective question. Each question answered correctly counts a certain number of points. The number of points a candidate receives in a certain subject serves to determine his grade. The test lasts for approximately three hours. The fees the student has to pay for registration and for taking the test are very low; in fact, they are just high enough to prevent people with insufficient motivation from participating in the TV High School courses, as such participants would only form an unnecessary burden. Similarly, the exam fee will also keep students with insufficient preparation from attempting to take the test at too early a stage. When enrolling in the TV High School, the students are given the written accompanying material. This accompanying material encompasses primarily a manual consisting of ten individual booklets, which was devised especially for the TV High School. It contains explanations relating to each TV lesson, provides exercises, and offers the students information as to further helpful textbooks and study material. The charge for the manual is $ 12.50.

3. The Course Situation

In other towns in which TV High School courses have been conducted, it has become evident that the complete lack of contacts between the teacher and the student results in a substantial decrease of performance and motivation on the part of the students. The experiments carried out showed that, first of all, home students (i.e., students who participate in the courses at home) do not only tend to drop out of the courses more rapidly than students viewing the programmes in a group under the supervision of a tutor, but also usually achieve less good test results than students working in groups. Secondly, these experiments made the fact obvious that the lack of inter-actional possibilities between the student at home and the teacher on TV also leads to reduction in performance and motivation. Thus, the Boston version of the TV High School was improved in two ways, as compared with TV High Schools established at earlier dates:

1. By following up the broadcast of the recorded thirty-minute lesson by a live lesson lasting 15 minutes. In this quarter of an hour a second teacher, who is a specialist in the subject discipline presented in the preceding lesson, summarizes the content of the lesson and discusses a few main problems and difficulties relating to the specific subject matter. During and after this supplementary lesson the students have the possibility to ask the teacher questions by telephone. These questions are either answered directly by the teacher giving the supplementary lesson, or by discussions with other qualified teachers, who are also at the TV station during broadcasting hours. This innovation was

established in order to give the students the possibility of asking questions about the material presented, and of being instructed personally on specific problems by a qualified teacher. In this way the standardised TV lesson receives a human and responsive dimension. The teachers required for this task are assigned and made acquainted with their work by the Bureau of Adult Education and Extended Services.

2. By exploiting the group effect for the learning process through the organisation of so-called "neighbourhood groups". These neighbourhood groups are made up of students living in a certain part of town or block. Students belonging to such a group meet every evening from Monday to Friday near their house, and view the lessons under the supervision of a tutor. This neighbourhood viewing centre fulfils two functions: First, it is intended to give the individual the feeling that he belongs to a study community and also to eliminate the anonymity of TV teaching methods. Second, the neighbourhood centre is supposed to be a place where the student can go in order to study without being interrupted or disturbed, as may be the case at home, and where he is able to discuss questions and general problems with other students and with a tutor. Viewing the TV lessons at such a centre is voluntary, so that the student naturally also has the choice of watching the programme alone at home.

A joint campaign, which embraced the entire community of Boston, preceded the establishment of the neighbourhood viewing centres. Owing to the immense economical value and significance of the High School Certificate for the students, and taking the effect of this Certificate on society as a whole into consideration, it was possible to gain the co-operation of a large number of organisations and institutions in equipping and realising the neighbourhood viewing centres. Public and private associations of all kinds, philanthropical societies, libraries, facilities of the municipal fire-brigade, advisory centres of companies and industrial groups, church facilities, charity organisations and all types of public and private schools placed rooms and TV sets at the disposal of the TV High School. They also trained tutors, gave these tutors the time for supervising the neighbourhood viewing centres, and intensively canvassed students for the TV High School.

The tutors in charge of the neighbourhood groups are mostly recruited from students at the colleges and universities in Boston, or they are members of the Boston Vista Group (Volunteers in Service to America), which is a kind of development organisation with the aim to solve urgent social problems in the USA.

Contacts between the project management and the neighbourhood groups were maintained by a staff of attendants, who were allocated to certain parts of town. These attendants met the individual neighbourhood groups from time to time, helped to solve problems concerning equipment and administration, and assigned tutors to neighbourhood groups having a shortage. The impressions and experience as to the needs and difficulties of the students, that these attendants gathered at their visits, provided the project management with valuable information and help for adjusting and organizing the TV courses and the supplementary quarter-hour live lessons.

4. The Students

As yet the degree of success of the Boston TV High School is not known. It will not be until exact statistics have been compiled, relating to the number of students of the TV High School which have taken the GED-test, to their success in the individual subjects, and to the number of students having received the diploma, that the exact degree of success of the project - be it high or low - will be known. However, the fact that some 20,000 people participated in the program — indicates that the Boston TV High School can be termed successful. Detailed scientific evaluations as to the motivation and social composition of the students will not be available until about the middle of 1963*. Nevertheless, the following tentative conclusions can be drawn from the personal interviews and observations of the tutors in charge of the neighbourhood viewing centres, in respect to the structure of the student body:
As was intended, the majority of the students were men and women who wanted to catch up with an interrupted school education by means of the TV High School program. In addition, however, a considerable number of students attending the local High Schools participated in the TV courses, in order to refresh and supplement their knowledge.

The motives and the social composition of the first student body appear to be as follows:
The main reason for enrolling in the TV High School is the possibility of attaining at a later date a better paid and more prestigeful position with the help of the High School Diploma. A small percentage of the students participate in the TV High School in order to be better informed and/or to spend their spare time in a more useful and contenting manner. The majority of the students are married women - either housewives or factory workers - with a family, and are between 30 and 35 years old. In general, they are members of the lower middle or the upper lower classes and live in the middle of Boston or in the suburbs, in which there is industrial concentration.

---

* These results will be included in the final version of this compendium

5. Experience Gained from the Project

The Boston TV High School has an average drop-out rate of 36 %, even in well-organized neighbourhood viewing centres, which is an extremely high figure. The main reason for most students to interrupt the course is the broadcasting time (6 p.m.), which is not favourable for most of them. Most of the female students have to take care of their families at this time, and many men, some of which work until 5.30 p.m. and have long journeys home, do not have enough time to reach the viewing centres in time for the beginning of the program. The majority of these men and women would prefer to have the programs broadcast between 7.30 and 8 p.m., i.e. after supper. For this reason the broadcasting period of the TV programs in the next term of the Boston TV High School is to be altered accordingly.

In general, the students responded positively to the supplementary quarter-hour live programs. A substantial percentage of the students stated that these supplementary lessons were extremely helpful in enabling them to grasp the TV courses recorded on video tape, which often proceeded at too fast a rate. The possibility of asking questions on the phone was also praised greatly by the students. The average number of phone calls per evening was 4 - 7. However, most of the calls turned out to be purely technical, e. g.: "Is there a neighbourhood viewing centre near my place?" "Where can I register for the TV High School?" "What is required in the test?" etc., and did not have anything to do with the contents of the lesson as such. When asked for the reason for this, most of the students simply said that they could not think of any questions or problems relating to the courses. This response gives rise to the conclusion that the majority of the students still react passively and receptively to the programs, and not dynamically and inter-actively as was hoped by the project management. It should not be forgotten that the stimulation of the students' activity was the reason for setting up the supplementary TV programs and the telephone question and answer periods.

A large-scale promotion campaign, which informed the public of the objectives of the TV High School and stressed the value of a High School Diploma, preceded the courses in August and September. Within the framework of this campaign no advertising medium was left out. This PR-work was based mainly on publications in the press dealing with the project, but it also included advertisements in newspapers, loose insets in newspapers and magazines in the form of brochures, public counselling offices, information of the public through schools, churches and other public and private institutions, personal meetings with such organizations that might participate in the project, announcements in mass transport facilities such as buses, trains and underground, pamphlets distributed in supermarkets - in short, no advertising media were omitted, provided they indicated only a small chance of success. This promotion campaign had two purposes: First, it was to canvass students for the TV High School and second, it was to gain the co-operation and participation of all municipal organizations and interested citizens in carrying out the project. The realization of the basis of the Boston TV High School, i.e. the establishment of the neighbourhood viewing centres, was thus to be a joint undertaking of all citizens of the town. As already mentioned, this undertaking included the provision of rooms and TV sets, the canvassing of students and tutors, the composition of the neighbourhood viewing groups and the allocation of tutors, and the task of equipping the neighbourhood viewing centres with the requisite textbooks and other study material. All of this was not to be done by the project management, but through the initiative of the municipality of its various bodies. It did, however, turn out that in general the WGBH Television Station and the Bureau of Adult Education had to organize and equip the neighbourhood viewing centres, and deal with all related matters. In cases in which establishing the neighbourhood viewing centres had been left entirely up to some other organizations or individuals, either nothing at all happened, or the organizatory groups separated after a short time because of poor coordination. One reason for the failure of the undertakings carried out by the town bodies was obviously the fact that the promotion campaign had been launched after insufficient preparation, and that the requests for the town to participate in the realization of the TV High School were too vague and unclear to stimulate decisive and immediate action.

Further knowledge gained from the first Boston TV High School was that the tutors engaged for supervising the neighbourhood viewing groups were not prepared sufficiently for their work. If the TV High School is to achieve the highest possible degree of success, these tutors must be made fully acquainted with the contents and the pedagogical method of the course program. It appears as if an educational program based on local study groups needs at least the same amount of organizatory and planning work on the part of the project management, as the TV program and the supplementary lesson. Moreover, it seems that only a part of this organizatory and planning work can be left to the initiative of the town bodies.

The results of the first term of the Boston TV High School are, at present, still being evaluated. The next TV High School courses, which are scheduled to begin in spring, will benefit from these results.

CHICAGO TV COLLEGE

1. General Facts

Since 1956 the inhabitants of Chicago and the neighbouring communities have been provided with the possibility of participating in television courses presenting the complete curriculum of the American Junior College, and of attaining the degree of an Associate of Arts, after having passed the course examinations. The curriculum of the Junior College continues from the High School curriculum, consisting of the 13th and 14th grades, i.e. the first two years of university study within the framework of the US educational system. By virtue of its special combination of general and vocational subjects, the curriculum of the Junior College offers the students full qualifications in certain fields of occupation. Thus, the degree of an Associate of Arts is a separate and final diploma. This degree does, however, also justify a student to enrol in the third year of some universities, and enables him to apply for studying at one of the more reputed and famous universities, which have a stricter selective policy than other universities. In this way the Associate of Arts degree can serve to pave the way to higher academic qualifications and professions.

The concept underlying the TV College was to provide further education facilities to people who had been unable to attend a regular college due to exceptional family or professional conditions, or because of illness or physical disability. This concept lay within the general trend towards equal educational possibilities for everybody. Furthermore, the TV College is intended for the inmates of reformatories and prisons. The second, very pragmatical reason underlying this project, was to remove the burden of too high a number of students from the 8 individual colleges, which the Chicago City Junior College has established in town, by broadcasting television courses in certain subjects.

The TV College began operation by conducting an experiment lasting three years, which was intended to check the feasibility and efficiency of television teaching. The initiative to exploit public television for tasks of formal education and to launch such a project came from the faculty members and administrators of the Chicago City Junior College. The financial basis was established by a sum of $ 400,000.-- provided by the Chicago Board of Education, and a donation of $ 475,000.-- from the "Fund for the Advancement of Education" of the Ford Foundation. In 1960, when the final report on this experimental period was submitted which proved the successful operation of the TV College, it was decided to set up the College as a permanent institution. Ever since then, the TV College has been an integrated component of the Chicago City College, and has had its own budget.

In operating the TV College the Chicago City Junior College cooperates with the Chicago Educational Broadcasting Association. The WTTW station of this association broadcasts the courses on channel 11. Whereas the programmes are conceived and designed by the Chicago City Junior College, production is a joint undertaking of both organisations. The Chicago City Junior College and the Teachers Colleges in Chicago organise jointly guidance and counselling services for the students, the work following the television programmes in the form of a correspondence course, seminars and lectures, and the conception and production of the accompanying material.

The TV College has a catchment area with a diameter of approximately 75 miles, which includes the whole of Chicago and some neighbouring communities, so that there is a total of 7 million people living in this region. Chicago is an important intersection for train and air routes, and, taking its economical status into consideration, one of the most significant industrial and trade centres in the USA. The inhabitants of this city are, in respect to their vocational activity and educational level, very heterogenic. A great deal more than 50 % of the population are negroes, this being an extremely high figure. Apart from the Chicago City Junior College, which has eight individual colleges in the Chicago urban area with a total of approximately 25,000 students per annum, there are about half a dozen other colleges and universities. The great interest the public showed in general for the TV College proves that the College fills a gap in the educational system with its special methods, in spite of the numerous existing educational and training facilities.

The Chicago TV College was the first institution of its kind. It later became a model followed by many similar projects all over the world, such as the 'University of the Air' of the New York State University, and the planned 'Open University' in Great Britain, among many others.

2. The Organisation

The Chicago City Junior College consists of 8 individual colleges, which are situated in different parts of the town. They are under the supervision of an executive director, who is directly responsible to the general superintendent of the Chicago Public School Authority. The TV College is an integrated component of this system of Junior Colleges. The television courses are also used for teaching regular students at the 8 individual colleges. Potential students, who want to participate in the TV College, have to enrol personally at one of the eight colleges and are registered as students of these local institutions throughout the entire course of their studies. Students having already participated in more than five courses can also enrol by mail. In the case of beginners it is considered important for these students to visit the respective enrolment centres personally, in order to give them the feeling that they belong to an academic community and to make them directly acquainted with the library and the psychological counselling service.

In principle, there are two ways of participating in the TV College programmes, and so there are accordingly two different groups of students, varying both in motivation and in time spent for studying:

a) the credit students, i.e. students wanting to reach the degree of an Associate of Arts by participating in the courses and taking the examinations, and

b) the non-credit students, i.e. students participating in the courses informally without taking any examinations.

The credit students have to pay a fee of $ 5.00 for participating in one or two courses, and $ 10.00 for taking part in three courses or more. The non-credit students must pay a fee of $ 1.00 per course for the accompanying material. Students attending the TV College must have the High School Diploma. Students who have not completed High School can be given a special status as students, if they are 19 years of age or older. In general, the conditions for enrolment, the requirements for participating in the course, the examinations, and all other requirements which must be fulfilled by the students are the same at the TV College and throughout the eight local colleges of the Chicago City Junior College, with the exception of the regulations underlying the participation in classroom lessons.

A Dean has been appointed for the TV College, in order to deal with the special responsibilities connected with television teaching. He is assisted by an expert in the field of education and TV research, a pedagogue, three television producers, and a small staff of assistants. He is responsible for the policy and design of the programmes, for selecting and instructing the TV teachers, for registering the non-credit students and for all further activities of the TV College.

At each of the eight local colleges of the Chicago City Junior College, at which TV students are enrolled, a member of the regular teaching staff has been appointed as television coordinator. He serves as a liaison officer between the respective college and the students registered at this college on the one hand, and the Dean of the TV College on the other hand. The liaison officer has the task of passing on all announcements of the Dean as to the dates of examinations, seminars, etc. to the students, and to furnish the administrative bureau of the TV College with statistical data on the number of students participating in each course, and with other important details which are of significance for the conception and design of the programmes. The television coordinator also organises the enrolment days, the personal meetings of TV teachers and students, and the examinations held at the respective college.

In general, the TV teachers are highly talented and qualified teachers selected from the regular staff of the City Junior College. Some of the television courses necessitate the co-operation of group teachers, i.e. teachers who do not teach on television, but supervise the students' work following the broadcasts, or seminars and conferences relating to the individual courses. The number of group teachers required for a certain course depends on the number of students participating and on the nature of the course, that is whether the course in question is primarily to convey a certain knowledge and conception to the students (content course), or whether it serves mainly to practise certain skills (skill course). The English language course is an example for a course necessitating a large number of group teachers, as the students often have homework which they send in to the College, so that the teacher can grade it, make his comments, and return it. The group teacher also organises and supervises the examinations in the various courses. Normally the examinations consist of two parts; first, homework which the student is required to do on certain subjects during the course, and which he sends in to be corrected and graded, and second a final exam in each course, consisting of a written and an oral part. The students all take this examination at the main college of the City Junior College. The written part of the examination can be either of a subjective or objective nature. The overall grade for a course is thus extracted from the results achieved in both parts of the examination. The Junior College does not have a final exam as, for example, in Great Britain. Every student who has successfully attended the fourteen individual courses in the compulsory subjects and six courses in the facultative subjects, which he can choose as he wishes, receives the degree of an Associate of Arts. Physically handicapped or ill students are able to take their examinations at home under the supervision of a representative of the TV College. Similarly, the inmates of reformatories or prisons participating in the TV College programme can take the examinations under the supervision of the educational officer of their respective institution. Apart from organising the examinations the group teachers are also concerned with maintaining class lists and keeping check of the rate of premature drop-outs. They also give the students help, advice and information at the conferences and during the weekly telephone counselling periods. In general, the group teachers are also chosen from the staff of the Chicago City College, so that staff members from the Chicago Teachers Colleges are only employed for supervising training courses for future teachers.

Some of the television courses are recorded (videotape), whereas others are broadcast live. In the case of live programmes a substitute for the television teachers is always foreseen, should the first teacher fall ill, or if something else should happen.

3. The Courses and the Policy Underlying the Programmes

The TV College offers potential participants in and around Chicago a program consisting of 25 - 27 lessons a week. This corresponds to approximately 10 different courses in each of the 16-week terms of the academic year. The summer program, which lasts for eight weeks, comprises an average of 9 lessons (or four courses) a week. Normally a course is made up of 30 programs lasting 45 minutes each. Half of the courses held in one term are live programs whereas the other half of the courses are videotape recordings of earlier series. Each program is re-broadcast either during the same evening or on the following day, for students who were for some reasons not able to view the first broadcast.

The curriculum consists of six groups of subjects. Each term courses in general education subjects are presented; these courses consist of sociological subjects, biology, physics, art, and English language. In the course of their studies all students aiming at the degree of an Associate of Arts have to participate in a fixed study program made up of about 14 courses in this group of subjects. Apart from these compulsory subjects, other groups of subjects are also offered, from which the students can compile their study of facultative subjects according to their interests and vocational aims. These studies last for about 6 courses. The facultative subjects also serve to take the desires and wishes of the non-credit students into consideration, as far as this is possible. The non-credit students are interested primarily in a general improvement of their education and of their vocational knowledge and training. They also wish to gain further knowledge in certain fields of activity. Thus, these additional lessons usually consist of courses in one of the five following groups of subjects:

1) the Arts subjects - literature, history, art history, philosophy,

2) languages - one language course annually in German, French, Spanish, or Russian,

3) vocational training subjects - book-keeping, shorthand, typing, commercial law,

4) subjects from the curriculum of teachers' training colleges - educational and child psychology, philosophy of education, sociometry, and

5) special courses in mathematics and in the scientific subjects.

The sequence of these 5 inter-related groups of facultative subjects corresponds approximately to the importance and scale of these subjects within the framework of the overall program of the TV College. Moreover, the ranking of these individual groups within the overall program can be seen in Chart 1.

Chart 1

Survey of the courses held between 1956 - 1965

Subject	Number of courses	Number of presentations
Art	2	4
Biology	2	12
Business management	10	18
Data processing	1	1
Educational science	6	18
English	7	27
Humanities	5	17
Mathematics	3	14
Modern languages	5	11
Music	2	4
Natural science	5	16
Social science	12	33
Languages	1	6
Total	61	181

in which the subjects offered in 1956 - 1965 have been compiled according to the number of courses and the number of re-broadcast programs in each subject. As can be seen in this chart, a total of 61 different courses has been broadcast during the 12 years since the TV College was first opened. These courses ranged from contemporary art and American literature to algebra and linguistics. Between 1965 and 1967 14 further courses were added, so that the overall framework of courses has now reached 75 subjects. Many courses have been repeated 5 or 6 times, but most of them only once or twice. Chart 2 shows the courses offered in one term, the organization of the timetable, broadcasting and re-broadcasting schedules.

The courses presented in each term are selected in such a way that they appeal to three different groups of students:

1) the credit students aiming at an Associate of Arts degree, in order to reach some kind of vocational target

2) students intending to continue their studies at teachers' training colleges after having completed the TV College courses. This category also includes teachers already in employment, who want to further their education and knowledge

Chart 3

Timetable of the TV College: Autumn Term 1968

Day Time	Monday	Tuesday	Wednesday	Thursday	Friday
9^{15}		Political Science 201		Political Science 201	
11^{15}		Data Processing 101		Data Processing 101	
11^{30}			Literature 117		Literature 117
12^{45}	Business Manage- ment 120	Language 101	Business Manage- ment 120	Language 101	Mathematics 115
13^{15}	Art Education 201	Natural Science 101 - 111	Art Education 201	Natural Science 101 - 111	
13^{45}	Italian 101	Psychology 201	Italian 101	Psychology 201	
17^{45}	Psychology 201		Psychology 201		
18^{00}		Language 101		Language 171	Mathematics 115
18^{30}		Business Manage- ment 120	Political Science 201	Business Manage- ment 120	Political Science 201
19^{15}	Literature 117	Italian 101	Data Processing 101	Literature 117	Italian 101
20^{15}	Natural Science 101 - 111	Art Education 201	Natural Science 101 - 111	Art Education 201	

3) the NON-CREDIT students participating in the curriculum on a tentative basis, who are primarily interested in improving their general standard of education on the one hand, and in attaining vocational training on the other.

The special desires of the students participating in the TV College as to extra-curricular courses and lessons are determined by means of questionnaires sent out periodically.

One characteristic which all three categories of students have in common is the fact that they wish to continue their education and training, but were prevented from attending regular schools and universities by illnesses or physical handicaps, or because they committed a crime or offence and now are in a prison separated from society.

As has already been stressed, the main aim of the TV College is to provide this group of the population with a programme of further education leading to a formal level of knowledge. However, the flexibility of television as a teaching medium and the permanent crisis in the structure of the general school and university system lead to the participation of a number of schools and similar institutions in the TV courses, in this way hoping to reach their specific teaching aims. The TV courses are used for the classroom teaching of regular students at the eight local colleges of the City Junior College and at certain teachers' training colleges in Chicago. In so doing two television lessons in a certain subject are supplemented by a direct lesson lasting for one hour. In principle, colleges and universities accept TV teaching as a highly important and valuable method. This method does not only permit large numbers of students to be instructed simultaneously, but also provides the students with the best teachers in every subject. Furthermore, colleges with shortages in staff and equipment can in this way offer courses with a high degree of quality, which would otherwise not be possible. The TV courses are not only available to the Chicago City College, but also to other colleges all over the nation in the form of videotape recordings, through the Great Plains National Instructional Library, a non-profit making organization established at the University of Nebraska in Lincoln, Nebraska. Nevertheless, teachers whose courses are made available by this library always exercise full control over the contents of their courses. Colleges using the recorded courses only have to pay a sum covering the expenses for the administrative cost connected with the copying and delivery of their videotapes. So far about 9 recordings of TV College courses have been purchased and used by other institutions. Another institution or group of students participating in the TV College is the High School or rather those High School pupils, who qualify for talent and educational promotion. After having been recommended by the principals of the respective High Schools, such pupils are allowed to register for selected TV courses during their last year of school. Apart from the fact that this regulation offers the pupils the possibility of obtaining a certain idea of what studying at a university is like, before actually enrolling at a university, the TV courses also provide them with a facility for independent further education. It is interesting to note that in the case of this category of students the supplementary direct lessons can be dropped without a decrease in the students' performance. Their motivation and zeal are so strong that they do not require additional motivation or consequent work on the contents of a broadcast, as would be provided by a teacher.

Apart from improving the existing courses for the various groups of students, the TV College also plans in the coming years to give more attention to special training facilities for various professions within the framework of the overall curriculum. Programs are planned leading to an Associate of Arts degree in social work, nursing, and police training. Further courses are to prepare students for professions such as banking, the broker's business, trade, and marketing. Another project currently being discussed is concerned with the TV College offering retraining programs with courses in data processing and electronics. Furthermore, general education programs are to be developed, which will above all guide young people suffering from a social handicap in the city of Chicago to further education.

e. The Training of the Television Teachers and the Work Undertaken to Prepare, Develop and Conduct a Television Course

The courses are prepared and developed by teachers and scientists of the Chicago City Junior College. Experience shows that teaching by television is by no means inferior to conventional classroom teaching, seen from both a pedagogical and a qualitative point of view. On the contrary, the students achieve far greater success than through classroom teaching, if the teacher has mastered TV as a teaching medium, if he exploits all the possibilities offered by this method, and if he supplements it by other audio-visual methods, teaching aids and approaches, whenever these should be pedagogically suitable.

The following deals with the procedure currently used at the TV College to make the teachers acquainted with television as a teaching medium. It is also concerned with various combinations of TV teaching and other teaching aids.

Naturally, the actual key figure at the TV College is the teacher. The College was lucky enough to gain competent teachers for its television courses. The procedure in employing the teachers is as follows: Teachers are requested to send in their application for working on TV. Another possibility is to ask university chancellors or heads of faculties to make suggestions as to suitable teachers. Only a very small number of teachers were employed who are not regular members of the faculties of the Chicago City College. This is not supposed to be an absolutely rigid policy, but it is thought that the unity of the TV College as an institution can be maintained best in this way. Each teacher selected as a TV teacher for a certain course is initially requested to compile a program lasting for about 10 minutes on a subject he is especially interested in. This program is recorded, and discussed and explained in detail by the respective teacher and the members of the television staff when presented. Mistakes made are pointed out to the teacher, he is given advice as to correct behaviour on TV (gestures and language), and he is shown various tricks that can be used when teaching. The next step the teacher must take is to compile a 45 minute program dealing with part of the subject matter of the planned course. In so doing he must give special attention to the mode of presentation of the material taught and to the rhythm of the lesson, in respect to the usage of audio-visual teaching methods. The teacher will not start with the actual preparation of his course until he has successfully completed this trial program and is fully acquainted with using television as a teaching medium.

Each teacher is granted a preparatory period of eight weeks for each course, during which he receives his full salary, before the first program is broadcast. His first task is to draw up a short report, in which the main teaching aims of the course are explained and discussed. In traditional classroom teaching the teaching aims normally remain implicit, so that a course is formed wholly by the textbooks and the other study material used. A preparatory period lasting 8 weeks, devoted entirely to the conception and planning of one single course, makes it possible to formulate clearly the implicit aims of the course and to develop the mode of presentation of the material accordingly. Normally the teacher merely realizes what he would like to do, but does not realise in what way his work should alter and influence the students' behaviour. However, by tackling the problems related to his subject and by planning his course intensively the teacher is enabled to describe the changes in behaviour, in the orientation of values, in sensitivity, in the viewpoints and opinions, in the talents and standards of knowledge of the students, and to form and present the course accordingly.

The teaching aims determine

a) which mode of presentation is to be used for the television courses, and to what extent audio-visual teaching aids are to be used in presenting the material; for example, content courses such as history, literature, and social science, are suited especially for being presented in the form of lectures, whereas skill courses such as natural science, music, art, typing, and shorthand, must employ a substantial amount of trial demonstrations and dramatising effects in the studio, and - as can already be mentioned here - necessitate a closer contact between the teacher and the students in the form of conferences, seminars, classroom exercises, etc., and

2) *which audio-visual aids, teaching aids and procedures are to be combined with the television programme, and the intensity of this combination*: This is a problem which is to be discussed in the following. In the majority of the courses run by the TV College the students are supported in grasping and elaborating the material taught in the television programme by a comprehensive guide accompanying the courses, by a correspondence course running parallel, by programme exercise material, conferences, and telephone counselling periods. The following examples are to show which functions the individual teaching and studying methods have in realising the teaching aim, and which theoretical and psychological concepts underlie this specific combination of television teaching with other methods of teaching and studying:

a) The Guide Accompanying the Courses

The guide accompanying the courses contains a description of the most important studying aims, additional explanations geared to each TV programme, reading material, and exercises and information on the homework to be done on a certain topic and submitted at a certain date. Apart from this guide, the TV courses are elaborated in some cases by normal textbooks which are handed out to the students, and in a few cases by tapes and records placed at the students' disposal for their home studies.

The guide can only provide general information on the requirements of a course, as these books with about 60 to 70 pages are printed by commercial printing shops and given to the students each time a videotape recording of a course is re-broadcast. For this reason the credit students receive a credit bulletin every term, in addition to the guide. This bulletin informs the students of when and where conferences and examinations are to take place, of when the television teacher and the group teacher can be reached on the phone, and of which other requirements they must fulfill in order to complete a certain course.

b) The Correspondence Course

Correspondence courses are developed in a short, limited form to accompany all of the TV courses. These correspondence courses play an especially important part in courses necessitating active individual work on the part of the students. About once a week each student mails work he has done on a certain subject, or other worksheets and exercise sheets, to the group teacher to whom he is allocated. The group teacher grades the work, makes comments, gives advice as to gaps in the student's knowledge, and returns the work to the student. Should unclear points or difficulties arise on the part of the student during this postal interaction, he can clarify these at short notice at a certain time of the day by phoning his group teacher.

c) Programmed Exercise Material

In addition to the students' guide, many teachers develop exercise material based on the principles of linear-programmed instruction. In general, this exercise material consists of answer sheets with the grades for self-correction already attached, or answer sheets with references as to the correct answers to be found in the students' guide. In this way the process of learning can be reinforced, as the student is able to find out immediately whether his answer was right or wrong. For some courses exercise material has been developed based on the so-called "branching" programming method. In this case the student is referred to the passages in his guide or to certain textbooks that provide him with the correct answer and the individual steps leading to the correct answer, if his solution should not be right. Examples of courses with programmed exercise material are Educational Science 256, Business Management 101, Humanities 202, Physical Science 101, and Spanish 101.

Another version of programmed teaching is constituted by the so-called plan exercises, that are given in courses in business management. In these exercises the student shows and explains the individual aspects and steps which have led him to the solution of a certain problem. These data are fed into a computer by telephone. He then receives the solution of the computer analysis by mail or telephone within a very short period of time, together with a confirmation as to whether his thoughts were correct or not, and a list of possible errors determined by the computer.

d) Conferences

So-called conferences, i.e. meetings of the students and the television teachers and/or the group teachers are held for all courses. These conferences have the purpose of repeating and elaborating certain subject matters in discussions, and are intended to discuss general problems of studying, and difficulties and frustrations encountered by the students. Thus, apart from providing post-study possibilities for the material presented in the courses, the conferences are also supposed to maintain the students' motivation by virtue of the contacts with the teachers. In courses in which the TV programme and the study of the relevant literature form the nucleus, attendance of the conferences is not compulsory, whereas the students must attend the conferences in courses which are intended to drill certain skills. Therefore, the students participating in an Italian course held in the 1968 autumn term had to attend seven exercise meetings lasting about 1 1/2 hours each. Students interested in working in a laboratory as a supplement to the regular lessons in physics, have to spend four hours on seven Saturday mornings in such a laboratory. These practical exercise meetings are held at four of the local colleges of the Chicago City Junior College, the so-called TV Centres. These centres are located in such a way that one of them can be reached without difficulty by all students living within the town boundaries. In other courses such as Art, Astronomy and Music, the credit students must also visit museums, planetariums, concerts, and theatres, apart from attending the conferences.

e) The Telephone Periods

During the telephone periods the students can discuss in brief questions relating to a specific subject with their teacher. They can also arrange appointments for meeting the teacher personally for a comprehensive discussion. The main motive behind the telephone periods is to give the student a feeling of not being isolated, but of belonging to an academic group, which he can contact whenever he desires. Each television teacher can be reached on the phone by the students for two hours every week. The group teachers can be phoned almost daily.

Designing the TV programmes, developing and producing the students' guide, the programmed exercise material and the correspondence courses, planning the conferences and the telephone periods and several other tasks, constitute the work and problems to be done and solved by the teacher and a small staff of assistants, prior to the broadcasting of the first program. However, even when the course is under way and the teacher only has to face the camera 1 1/2 hours a week, working as a television teacher remains a full-time profession. Being free of the burden of other teaching responsibilities, the television teacher must now spend all his time on preparing the broadcasts for the following week, and must see to rehearsals and the coordination of the courses, as well as the conferences with his students.

During the first years of operation of the TV College each television course was prepared by a team of three teachers. After one month's work in this way, one of the members of the team was selected as TV teacher. The second member of the team became substitute teacher and the third member helped the first two in preparing the broadcasts. Eventually, the idea of teamwork was abandoned in favour of one television teacher and a substitute. This expedited the procedure of making the necessary decisions and cut the expenses required for preparing the individual courses. Currently, only one teacher is selected who prepares and develops the courses, and then give them himself in the studio. Shortly before the course is broadcast the TV teacher selects a substitute, who can take over should he fall ill or if something unforeseen happens. Normally the substitute teacher also works as a group teacher in the course in question.

If a course recorded on videotape is broadcast, the teacher is relieved of part of his regular teaching responsibilities, so that he can revise and supplement the course, and adjust it to the very latest standard of learning. If a teacher is of the opinion that more than 10 p.c. of his course will have to be revised, the whole course is normally broadcast live, which is cheaper and better than revision. The television teachers always maintain a control of the contents of their course, even if such a course is passed on in the form of video-tape to other colleges in the same state or in other states.

3. The Production of the Television Courses

The TV College has an annual contract governing the usage of studio facilities with WTTW, Channel 11. This station makes the broadcasting time available to the city of Chicago free of charge. The directors, the cameramen and the technical studio staff are also provided by WTTW. Despite this fact, the TV College staff includes three television producers, who all hold an academic position within the College. These producers cooperate with the teachers, when the lessons are developed and rehearsed. They also discuss the program with the studio directors, before they are broadcast. While the teacher is filmed live by the TV cameras, the producers and the directors watch the programs in the control room and make critical comments pertaining to each lesson, which are then discussed together with the teacher after the program has been broadcast.

The technical equipment required for broadcasting the programs is put together by the staff of WTTW according to the specifications of the producers. Most of the series of lectures are filmed with two cameras, but sometimes three cameras are used for series employing large quantities of demonstration material.

The staff of the TV College also includes a graphic artist working on a full-time basis, who cooperates closely with the teachers and producers in developing the visual material which serves to increase the quality of the lessons. If, however, the development of the visual material is of supreme importance, the more comprehensive possibilities of the graphic department of WTTW are resorted too.

Ever since 1966 the staff of the TV College has been employed with improving the methods of production. For many years most of the producers were satisfied with simply imitating the well-prepared lectures held in regular classrooms. Although there are few or even no results available based on relevant research, which might indicate in any way that the students' performance is influenced negatively by a lack of exactness and care in the production of the programs, the TV College management is determined to do their very best to exploit the visual potential of the medium to the greatest possible extent. All the members of the staff hope to be able to deviate from the verbal mode of presentation - the "talking face" - which at present is used almost exclusively. Perhaps it will be possible to give the medium itself the status of teaching method which encourages the students to partake in mental expansion and discovery, by exploiting the skills of a technical staff with the largest possible basis of training, by using the knowledge of experts in the fields of learning psychology, and by employing the results of experiments examining the teaching intensity of visual and not verbal dimensions, as compared with the almost exclusive role of the spoken word in conventional teaching methods, so that the medium will not remain a mere system of propagation.

The development explained in the following is of importance in view of the production of the courses to be held in the coming years: There is no doubt that the production of television courses will become organised and institutionalised proportionally to the degree of exchange of videotape recordings. At present many colleges in the United States are discussing the formation of cooperatives concerned with producing TV broadcasts. If such cooperatives could be realised, television courses would be produced and financed jointly and used by all the members of a cooperative. The Public Broadcasting Law, which was passed by Congress a short time ago, will help to expedite this movement, as this law provides for the possibility of establishing "educational laboratories" well equipped both in respect to material and to staff. This undertaking is to be carried out with financial aid from the Federal Government. The educational laboratories will offer the educational television institutions possibilities, which so far have been impossible to achieve with the available means. The TV College hopes to become a member of a cooperative established by the Junior College in Northern Illinois.

6. Important Accompanying Research

1. The various groups of students

The TV College reaches groups of students, who could otherwise normally not have access to lectures of this kind. Almost three-quarters of the television students are women. About half of them are housewives. The second large individual group consists of office clerks. This rough percentage breakdown of the students applies both to the credit students and to the non-credit students.

In general, the credit students are younger. Two thirds are in their twenties or thirties. In the case of the non-credit students only about one third belongs to this age group. About 45 % are forty or fifty years old. The standard of education of the two groups also varies. Almost 75 % of the credit students have some kind of college education, i.e. a large number of the television students are drop-outs, who have been brought back to university education by the special possibilities for studying offered by the TV College. As a contrast, less than half of the non-credit students have attended college for a few terms.

More than 80 % of the television students view the whole lesson systematically and untiringly, once having switched on their TV set. In so doing they use the students' guide published by the TV College, or the textbook recommended to them. 75 % of the credit students watch all the lessons in the course of their choice. In the case of the non-credit students only about 40 % viewed all the lessons. Nevertheless, almost 70 % stated that they had viewed at least three-quarters of the lessons.

These figures make the different motivations of the two groups of students obvious. Approximately 90 % of the credit students wanted to derive a direct profit from participating. In the case of the non-credit students this figure was only 50 %. Almost half of the credit students stated that they wanted to become teachers.

During the ten years of operation of the TV College the number of credit students has more than doubled. In 1956 2,302 credit students participated in the TV College; this figure has now risen to 5,425 students annually. During the same period the number of non-credit students has decreased somewhat. Nevertheless, the total number of students is continually rising. It is, however, obvious that the TV College has become more attractive in the course of the past 10 years. Charts 3 and 4 show the development of the number of students from 1956 to 1968.

Chart 3

Number of registrations at the Television College, 1956 to 1968 - Students

Year	Credit students	Non-credit students	Total
1956/57	2,302	4,325	6,627
1957/58	2,576	8,394	10,970
1958/59	2,694	8,583	11,277
1959/60	2,677	7,487	10,164
1960/61	4,929	5,272	10,201
1961/62	7,063	5,172	12,235
1962/63	5,043	2,942	7,985
1963/64	6,695	5,216	11,911
1964/65	8,571	3,538	12,109
1965/66	6,743	3,505	10,248
1966/67	5,953	3,664	9,617
1967/68	5,429	2,240	7,669
Total	61,277	59,736	121,013

Chart 4

Number of Registrations at the Television College, 1956 - 1968 - Courses

Year	Credit students	Non-credit students	Total
1956/57	4,392	8,799	13,191
1957/58	4,859	11,154	16,013
1958/59	4,693	13,571	18,264
1959/60	4,512	10,356	14,868
1960/61	7,269	7,656	14,925
1961/62	9,696	7,555	17,251
1962/63	8,119	3,234	11,353
1963/64	9,701	7,413	17,113
1964/65	11,488	4,846	16,334
1965/66	9,423	5,336	14,759
1966/67	8,743	5,453	13,196
1967/68	8,061	3,657	11,718
Total	90,956	89,030	179,985

The biggest increase in the number of students at the TV College was registered in 1961, when the TV College and the Chicago Teachers College ran courses together. By comparison, the number of students dropped in 1962 and 1963, which was caused by a change in the organisation of the College: The academic year was changed from two terms of 20 weeks each to two terms lasting 16 weeks, with an 8 week summer course. In addition, no courses in vocational training were held in these two years, and there was only one course of general interest. Consequently, the number of students decreased promptly by more than 4,000.

The initial impulse for the thousands of non-college-students enrolling annually in the TV College comes from very many different sources. Friends, who are already studying at the TV College are a frequent source of information. As, however, the TV College programs are broadcast publicly in a large city with about three million TV viewers, there is a big chance that potential students will "discover" the TV College directly, that is when switching channels on their TV set.

Intensive informatory and advertisement campaigns also help. Brochures are sent out regularly to 75,000 individuals and organisations. Moreover, a number of previews of the TV College are broadcast by the Chicago Educational Television. These previews serve to introduce the teachers of the TV courses, and inform the public of the details concerning enrolment. The public relations staff of the TV College also regularly provides the press with announcements and accompanying material dealing with the activities of the College.

2. Drop-outs and Graduates

Personal contacts between the television students and the teachers have continuously been reinforced by holding conferences at favourable days at the colleges, and by organising telephone periods, etc. The result of these endeavours is that almost 75 % of the TV College students now receive credits for the courses they have participated in, whereas in previous years only about 60 % of the students reached the examination at the end of each course. By autumn 1966 a total of 225 students had completed the entire program of the Junior College exclusively through TV courses. 160 inmates of prisons were among these 225 students. The number of students having reached the Associate of Arts degree through TV alone is relatively small, as most of the students participating in the TV College only complete part of the two-year Junior College programs through television courses - normally the first terms - and then leave to continue their studies at one of the 8 local colleges of the Chicago City College.

Among the graduates of these local colleges there is a substantial percentage of students every year who completed part of their studies at the TV College. Since 1956 approximately 1,800 students who received the degree of an Associate of Arts at Chicago City College completed an average of one term, i.e. four or five courses or a quarter of their entire studies, through TV. The 225 students mentioned before, who completed the entire program of the Junior College on TV, needed an average of three to four years to finish all the courses. Most of them completed two courses less per term than the credit students at Chicago City College. This extension of his studies is a tribute the TV student must pay to his double role of profession and studies and/or family and studies.

3. The Non-registered Audience

The results of TV research carried out in the Chicago area show that the TV College has a large non-registered audience. These are viewers who, while switching from one channel to another channel, come across a TV College program and watch it. The non-registered audience does, however, also include people whose attention is drawn to programs of the TV College dealing with a specific subject by announcements in newspapers.

Estimates indicate that the number of viewers watching each TV lesson ranges from 10,000 to 40,000. The surveys also showed that every term approximately 25,000 people watch the programs within the framework of one TV course fairly regularly. All in all, that means that every term some 10 courses are watched by 250,000 regular viewers and that an estimate of 500,000 people watch the TV College programme occasionally, but not regularly. Although many of these people only switch on their sets to watch the cultural series included in the overall programme, the number of people watching regular college study programme is still surprisingly large.

4. The Academic Achievement

Most of the students watching the TV courses at home recommend the Television College to their friends and state that they also want to participate in other courses. Students at college age watching the TV courses in lecture rooms do not have such a positive opinion of the TV College and hesitate in recommending it to other people. An important difference between these two groups is the factor of being able to select the courses of one's own choice. Home students register voluntarily for the TV College, whereas many of the students viewing the courses in lecture rooms are allocated to the TV section of a specific course, although they might have preferred the lessons with direct contact with the teacher. There are also signs indicating differences in the levels of motivation of the two groups.

When the comments of a few hundred Chicago City Junior College graduates, who had completed part of their studies through TV courses, were evaluated, the Television College was appraised positively. The majority was of the opinion that television courses were somewhat more demanding than conventional courses. Most of the students stated that they had learnt just as much through TV as they would have learnt in lecture rooms, and that they received approximately the same grades. A large number said that they thought the television courses were organised better than courses in conventional lecture room teaching, and that the material taught was presented more effectively.

During the first three years of operation of the TV College a systematic analysis of performance was conducted. In this analysis the academic success of the home TV students was compared with that of the regular lecture room students. The result of the first year did not show any noticeable differences. The home TV students only achieved better grades in the course for general biology. Within the framework of this analysis nine courses were compared with each other: three beginners' courses in English, two social science courses, two courses in biology, and one course each in political science and in mathematics.

In the second year of research eleven courses were compared. These were courses in book-keeping, social science, psychology, shorthand, the humanities, English, biology, and physics. In eight cases no difference in performance worth mentioning was found. In three cases the TV students achieved better results: in a year's course in the humanities, in an advanced course for biology, and a term course in physics.

In the third year of research students participating in TV courses in lecture rooms were also taken into this comparative study. Six courses were selected: Social science, physics, the humanities, psychology, mathematics, and a language course. When the results achieved in the six courses by the home TV students and the lecture room TV students were compared, it became evident that the home TV students are normally more successful. In general, there is no significant difference between the results achieved by students in direct lessons and the lecture room TV students. Wherever there are differences, they are in favour of the regular teaching situation. Home TV students, however, attain even better results than regular students in almost all cases.

Although a definite comparison of TV teaching and normal lecture room teaching would necessitate a more comprehensive definition of the teaching and studying situation than was used for the present study, the following tentative conclusions can be drawn from the results of the research:

1) Television teaching is just as good as other methods - and, indeed, is often better - when applied for mature and strongly motivated students.

2) Television used in lecture rooms is not as successful. In most cases, however, students taught through lecture room TV are just as successful as students taught directly by a teacher. Should considerable differences occur, they will be in favour of conventional lecture room teaching.

After the three-year experiment mentioned had been concluded, the organization of the television courses run by the College was changed, so as to improve the attitude and performance of the lecture room TV students. TV programs lasting 45 minutes were introduced, the number of programs required for a course counting three credits was reduced from three to two programs a week, and a discussion hour took the place of the third program. This alteration led to a combination of two television programs in a lecture room and a repetition hour taking place weekly under the supervision of a teacher. In this repetition hour the material presented in the two TV lessons is treated again with the help of textbooks and study materials, and difficulties encountered by the students are discussed with the teacher.

After these changes had been made, the results achieved by the lecture room TV students quickly caught up with those of regular lecture room students or of home TV students. A comparison showed that participants in television courses run in lecture rooms achieved the same grades as the other groups of students in subjects such as the humanities and history. Further examination made evident that lecture room TV students who attended an additional lesson, were in general half a grade better in the TV courses than in the regular lecture room courses. The survey also showed that lecture room TV students were on an average one grade better than TV students watching the programs at home.

5. The Teachers' and Students' Attitude towards Television Teaching

The TV teachers, most of whom have many years of teaching experience, consider the television courses to be superior to traditional teaching, as the teacher has more time to meditate on the program and organize it. The teachers enjoy re-preparing the material to be taught with a new approach and modern technical facilities. On the other hand, teachers who have not yet taught on television have, in general, a negative opinion of TV teaching. They do not, however, object to TV teaching as such, but only when used for their specific subject. Thus, their scepticism towards television as a teaching medium seems to be primarily of a defensive nature, and is boosted by the fact that these teachers think their work might be endangered by the new method. In addition, they criticise the lack of personal contacts between the teacher and his students, and point out the shortage of opportunities for the teacher to hold discussions with the students. The fact that teachers who originally had a negative opinion of TV teaching changed their opinion to a positive one, when they had been informed of the mode of operation and the possibilities of television teaching, and when they became acquainted with the advantages TV offers for preparing and developing a course, shows that their attitude was partly emotional.

The majority of the television students (home students) have a positive opinion of TV teaching. Here, too, it became evident that the students' positive opinion increases according to their experience in being taught through television.

The most frequently mentioned favourable aspects of the TV College were, in inquiries answered by the Chicago television students:

1) The TV teacher is prepared better for the lesson than a normal teacher, and the material taught is more comprehensive than is normally the case.

2) The teacher is able to present the material without being interrupted or disturbed, and

3) TV teaching provides people, who would otherwise not be able to study at a normal college due to certain personal conditions, with a possibility for further education.

The most common negative comments regarding the TV College were:

1) There are only a few opportunities of asking questions and discussing items of interest.

2) There is no personal contact between the teacher and the students.

3) Many teachers proceed at too fast a rate in their courses, and

4) TV teaching is dull and monotonous, and it is difficult for the student to concentrate.

Lecture room TV students, on the other hand, are characterised by a primarily negative attitude towards television teaching. There are several reasons for this varying appraisal of TV teaching among the various groups of students. First, the fact that lecture room TV students are not able to choose between television courses run in a lecture room and regular direct teaching, but are allocated to TV classes for reasons of teaching economy, may partly explain their negative feeling for TV teaching. Second, there are various factors indicating that home TV students are characterised by greater motivation, due to their specific situation and their definite vocational aims. This might well explain the better results achieved by these students, and their positive attitude towards television teaching.

7. Expenditure for Television Teaching

How much does teaching through TV cost, as compared with lecture room teaching?

Before discussing the expenses in detail, the various factors which must be considered when calculating the direct costs, must be broken down. These expenses are fees for public broadcasting through the studio; salaries for the teachers, the production staff and the administrative staff; expenditure for research material and audio-visual material; the costs for printing and mailing written material; transport; and expenses for extra office staff as required. These direct costs do not include fees for using library facilities; services rendered by officials; registration; heating and lighting the classrooms used by TV working groups - i.e. services rendered under normal conditions by the interested institution. These costs would only increase the total budget by a small margin - and could be met partly by income resulting from services rendered by the TV College and by fees paid by non-credit students.

By means of this breakdown of expenses the costs per television student can be calculated and compared with conventional teaching methods. In the first year of operation of the TV College (1956/57) when only four courses were broadcast and the number of credit students per course was relatively low, the expenditure of the TV College per student was considerably higher than the costs per normal student at the Chicago City College. In 1959, however, when nine courses were broadcast each term the expenses per capita dropped considerably, and in the fifth year of operation of the TV College (1960/1961), when there was an average of 800 credit students per TV course, the expenses for each student were exactly as high as for a normal student at the City College, namely approximately $ 500 a year. During the following terms the expenses per TV student dropped below the cost per student in normal teaching, proportionally to the increase of students in the individual television courses.

Politicians and educational planners, who are considering the introduction of television in the formal educational system, should bear in mind that - as soon as the expenses for TV teaching correspond to those for normal teaching - an additional number of students can be taught through the TV College with far lower expenditure than would be incurred by conventional teaching, in which the costs increase in an almost linear proportion to the increase in the number of students. In addition,the TV College provides educational facilities to a large number of non-credit students, who have not been taken into account in the above comparison. When including the non-credit students, i.e. the students who did not participate in order to reach an academic qualification, the TV-College provided in 1967 10,000 students with lessons in 10 courses costing a total of $ 700,000. Finally, the TV College also offers lessons to a large number of "occasional" students. Thus, investments made in the TV College do not only lead to benefits for a limited student body, as is the case with the traditional colleges, but also provide a benefit for a general public interested. This service rendered to the public and the contribution made to democratising the formal educational system by the TV College, cannot be rated high enough.

Bibliography

'Chicago's TV-College: A Report of a Three Year Experiment'; Chicago, Chicago City College, 1960, page 3.

'Chicago's TV-College: Final Report of a Three Year Experiment', Chicago, Chicago City College, 1960.

Evans, Gloria, B.: 'An Audience for Instructional Television: A Comparative Analysis of the Non-credit and Credit Enrollee in Chicago's Television College'.
Evanston, Illinois, Northwestern University Ph. D. Dissertation, 1963.

'Eight Years of TV-College: A Fourth Report', Chicago, Chicago City College, 1964.

Chausow, H., Zigerell, James: 'Instructional Television: The Recruiting and Training of Teachers', in 'Comparative Education', II, March 1966, pages 107-112.

'New Educational Media in Action: Case Studies for Planners II', UNESCO, International Institute for Educational Planning, Paris, 1967.

Academy for Educational Development, Attitudes toward Instructional Television, New York, August 1965.

Zigerell, James J.: 'Das TV-College von Chicago', in Internationale Vierteljahresschrift 'Fernsehen und Bildung', 3/4, 1968, pages 143-155.

III. APPENDIX

Points of the questionnaire / Nation / Name of the project	BRAZIL TV School for Illiterates	CANADA Tevec	FEDERAL REPUBLIC of GERMANY Telekolleg	FRANCE Télé-C.N.A.M.	Télé-
H.Q. of project management	Rio de Janeiro	Quebec	Munich	Paris	Renne
When was the project launched?	Autumn 1968	Summer 1968	January 1967	1963	Autum
What is the general aim of the project?	Equality of educational possibilities	Equality of educational possibilities	Equality of educational possibilities	Equality of educational possibilities	[illegible]
Which types of courses are offered?	Elementary school curriculum	Subjects from the curriculum of grades 5-9 of elementary school, in conjunction with social and cultural topics	Curriculum of the Berufsaufbauschule	Courses for the training of engineers	Agric course social nomic text
How long is one teaching cycle in weeks, months or years?	1 year	40 weeks	3 years	1 year	3 mont
Which group(s) of the population does the project aim at?	Young and adult illiterates	Adults, who have no school background (or a very poor education)	Young people and adults in vocational training, or who have just completed their apprenticeship	Technicians in employment	Adults king i cultur
Which general scholastic standards is the curriculum based on?	None	None	Elementary school graduation	Secondary school graduation (cf. GCE A-Level in mathematical subjects)	None
Which kind of certificate or diploma do the participants receive after having completed the curriculum and passed the examinations?	Elementary school leaving certificate	Junior High School diploma (cf. GCE O-Level)	Certified leaving diploma of the Berufsaufbauschule	Engineering diploma	None

ATE	GREAT BRITAIN	GREAT BRITAIN	JAPAN	POLAND	U.S.A.	U.S.A.
mation ale	Open University	Standard of living	TV-High-School	Politechnika Telewizyjna	Boston TV-High School	Chicago-TV College
	London	Nottingham	Tokyo	Warsaw	Boston	Chicago
166	1971	Autumn 1964	Spring 1963	Autumn 1966	Autumn 1969	Autumn 1956
ve fur- for al pos.	Equality of educational possibilities	Equality of educational possibilities	Equality of educational possibilities	Equality of educational possibilities	Equality of educational possibilities	Equality of educational possibilities
ural with nd eco- om-	University curriculum	Course in economics	High School curriculum	Curriculum of the first 2 years of technical university	High School curriculum	Junior College curriculum
s	3-5 years	13 weeks	4 years	2 years	7 months	2 years
or- agri-	Adults, who cannot attend a university owing to private or vocational reasons; housewives with grown-up children	Young people and adults having prematurely interrupted their education	Young people and adults in employment having prematurely interrupted their school education	Technicians in employment	Young people and adults having prematurely interrupted their school education	High School Graduates, who cannot attend college for family or vocational reasons; inmates of prisons or reformatories
	Secondary school graduation	Secondary school graduation	Junior High School graduation(corresponds to grade 9)	Secondary school graduation	Elementary school graduation	Secondary school graduation
	University diploma	Certificate of participation	High School Diploma	Admission to further studies at a technical university	High School Diploma	Associate of Arts Diploma (corresponds to the completion of the second year of study at a regular college, and entitles to admission into the third year of study at a certain college

Points of the questionnaire / Nation / Name of the project	BRAZIL TV School for Illiterates	CANADA Tevec	FEDERAL REPUBLIC of GERMANY Telekolleg	FRANCE Télé-C.N.A.M.	FRANC Télé-Prom Rura
Which public and/or private organisations assigned the project?	Ministry of Education	Ministry of Education of the province of Quebec	Bayerischer Rundfunk - Studienprogramm	Nationale Conservatoire des arts et Metiers	Délégati générale à Promotio ciale, Mi stry of A culture
Which organisations were responsible for the TV courses?	Ministry of Education, and the Fundacao Joao Baptista do Amaral, a non-profit foundation for promoting educational TV in Brazil	Administrative council, composed of representatives of the Ministry of Education, of Radio Quebec, and of the Finance Ministry	Bayerischer Rundfunk - Studienprogramm	C.N.A.M.	A committ made up o presentat of the Mi stry of a culture, vocationa ganisatio and the
Which organisation produced the TV courses?	TV-Globo, a commercial station	Radio Quebec	Bayerischer Rundfunk - Studienprogramm	C.N.A.M. and O.R.T.F.	Film dep the Mini Agric., wi help of
Which TV station broadcasts the course programmes?	Commercial stations in the province of Guanabara	Radio Quebec	Bayerischer Rundfunk - Studienprogramm	O.R.T.F.	O.R.T.F., [illegible]
In which provinces or parts of the nation can the course programmes be received?	In the province of Guanabara in the south-east of Brazil	In the region of Saguenay/Lac St.Jean	Bavaria (the courses will be or are broadcast by the other German states and by Swiss TV)	In the whole of France, except for a few provinces, where Channel Two cannot be received	In 20 dép ments in eastern
Which public and/or private organisations contributed to the financing of the project?	Ministry of Education, the army and private industrial enterprises	Ministry of Education and Finance Ministry of Quebec, Radio Quebec	Bavarian Ministry of Education, Volkswagen Foundation	C.N.A.M., Fonds Nationale de la Promotion Sociale et de la Formation Professionelle, industrial enterprises	Fonds Na de la For Professio de la Pro Sociale e l'Emploi
Is the organisation which coordinates the project and carries it out independent, or is it affiliated with a TV station, an official body or some other organisation? (If so, state which)	affiliated (Ministry of Education)	affiliated (Ministry of Education)	affiliated (Bayerischer Rundfunk)	affiliated (C.N.A.M.)	affiliate (Ministry Agricultu
Which organisations help in carrying out the work following the TV courses?	Fundacao Joao Baptista do Amaral and Fundacao Centro Brasileiro de Televisao Educativa	Quebec Ministry of Education and local school facilities, organisations of all kinds within the effective scope of the project	Bavarian Ministry of Education	C.N.A.M., industrial enterprises, Centre de Télé-enseignement and O.R.T.F. training centre for technicians	Unions an school te vocationa organisati

GREAT BRITAIN Open University	GREAT BRITAIN Standard of Living	JAPAN TV-High-School	POLAND Politechnika Telewizyjna	U.S.A. Boston TV-High School	U.S.A. Chicago-TV Colleg
Open University	Department for adult education of Nottingham University	Ministry of Education	Ministry for University Education	The Greater Boston Labor Council, US Office of Economic Opportunity, Massachusetts Department of Education	Chicago City Junior College
Open University	Nottingham University and the Department for teaching and research	NHK	School Ministry, Ministry for University Education	Manpower Education Institute, New York	Chicago City Junior College
B.B.C.	A.T.V. (Associated Television)	NHK, based on the network of the existing correspondence inst.	Dept. for educational TV of the Polish Broadcast. service	Manpower Education Institute, New York	Chicago City Junior Col., Chicago Educational Broadcast.associat.
B.B.C.	A.T.V. on weekdays, A.B.C. on Sundays	NHK, Tokyo	Polish Broadcasting service	WGBH in Boston	WTTW in Chicago
Throughout Great Britain and Northern Ireland	In the Midlands	Throughout Japan	Throughout Poland	In Boston and the suburbs	In Chicago and the suburbs
B.B.C. and Ministry of Education	Leverhulme Trust and partly also A.T.V. and A.B.C.	NHK and Ministry of Education	Ministry for University Education, UNESCO	WGBH and the 3 assignment organizations (see above)	Chicago City Junior College, Chicago Educat. Broadcast. assoc., Chicago Board of Edu., Fund for the advancement of Edu. of the Ford Foundation
Independent (Open University)	affiliated (Nottingham University)	affiliated (NHK)	affiliated (Polish Broadcasting service)	affiliated (WGBH)	affiliated (Chicago City Junior College)
No information available yet	1. Professors of the universities Birmingham, Keele, Leicester 2. W.E.A. 3. Economics association 4. Technical universities	NHK in cooperation with existing correspondence institutes and the regular schools	Ministry for University Education and School Ministry	WGBH and the bureau for adult education of the Massachusetts Department of Education	Chicago City Junior College in cooperation with Teachers Colleges in Chicago

Points of the questionnaire / Nation / Name of the project	BRAZIL TV School for Illiterates	CANADA Tevec	FEDERAL REPUBLIC of GERMANY Telekolleg	FRANCE Télé-C.N.A.M.	T
Number and type of courses in the curriculum	1: Reading, writing, social techniques	1: French, English, mathematics, marginal fields of the Humanities and social science	5 main courses: German, English, mathematics, history (+ econ. geography, social science), physics (+ chem.) 8 individual courses: Biology, technical drawing, econ. and business management, electrical engineering, tech. chemistry, business accounting	4: Introduction to higher mathematics, fundamentals of electronics, fundamentals of data processing, Introduction to "new" maths.	1:
Are the courses broadcast live or as recordings?	Live	Live	Recordings	Live	
How many programmes does a course consist of (average)?	36	240	Main course: 70 Ind. course: 5-26	60	72
How long is one programme (in minutes)?	30	75	30	60	60
On what days of the week and at what time are the programmes broadcast?	Wednesday 7p.m.-7.30p.m.	Monday-Friday 6p.m.-7.15p.m.	Daily 6p.m. - 7p.m., also Monday 8.15p.m. - 9.15p.m., Saturday 1p.m. - 2p.m., Sunday 9.30a.m.-11a.m.	Weekdays 6.15p.m.-7.15p.m.	
Which learning aids and teaching techniques are used to support the TV lessons?	1. Each programme is supported by 30 minutes of direct teaching by a teacher or tutor 2. Group action to apply the new knowledge and skills in practice 3. Written accompanying material	1. Correspondence course parallel to TV course 2. Group discussions under supervision of a tutor once a week at the local Télé-Clubs 3. House attendants visiting each participant regularly and discussing problems and encouraging him 4. Written accompanying material	1. Written accompanying material 2. Correspondence course 3. Kollegtage: every third Saturday 5 hours direct teaching	1. Group teaching supervised by a specialised teacher or engineer 2. Correspondence course parallel to the TV course 3. Written accompanying material	1.
How many minutes of additional direct teaching or group discussion with a teacher or tutor apply in general to a one-hour TV programme?	100	One evening of group discussion under a tutor follows after 6 1/4 hours of TV broadcasts (5 programmes)	20-25	- -	115

	GREAT BRITAIN	GREAT BRITAIN	JAPAN	POLAND	U.S.A.	U.S.A.
tion	Open University	Standard of living	TV-High-School	Politechnika Telewizyjna	Boston TV-High School	Chicago-TV College
ium ic- cre- f e, ipme,	4 main courses: mathematics, introduction to science, literature, introduction to the humanities 2. Training conversion course 3. Refresher courses	1: Economics: Fundamental problems of economics	9: Japanese, social science, mathematics, science, gymnastics, art, English, household training, vocational training	11: Mathematics I,II,III (for terms 1, 2, 3); descriptive geometry I,II; chemistry I; physics I,II, III; strength of materials (?); fundamentals of electronics	5: English, literature, social science, mathematics, science	11: Business management, art, language, literature, political science, data processing, science, psychology, Italian, mathematics (autumn term 1968)
rded	Partly live, partly recorded	live	Partly live, partly recorded	Partly live, partly recorded	Recordings	Partly live, partly recorded
	- -	13	approx. 30(-35) (for general programmes)	60	12	30
	- -	20	40	30	30	45
m.-(m.; .30	Monday-Friday 5.30p.m.-7.30 p.m.	Sunday:12.15 p.m.; Monday:10.30 a.m. (re-broadcast)	Monday-Friday 5p.m.-11.20p.m.; Sunday: 10a.m. - 5p.m.	Monday-Friday late afternoon and evening; Sunday	Monday-Friday 4p.m.-6.30p.m.	Monday-Friday 8a.m.-4p.m.; 6p.m.-10p.m. (re-broadcast)
ts the and ast s) r- l ract rts e- to le on	1. Parallel correspondence course 2. Written accompanying material 3. Manuals 4. Group teaching 5. Consultation services	1. Parallel correspondence course 2. Two group meetings during the course 3. Textbooks	1. Textbooks 2. Monthly periodical with teaching material and information on the school 3. Discussions during the 20 compulsory residential school days	1. Correspondence courses parallel to TV course 2. Group teaching in consultation centres 3. Written accompanying material	1. 15 minutes supplementary lesson after the broadcast 2. Group teaching 3. Telephone feed-back to TV teacher for subject problems 4. Written accompanying material	1. Correspondence course parallel to TV course 2. Group discussion with a teacher, so-called conference 3. Telephone periods at certain times during the week 4. Written accompanying material
	- -	2 x 2 hours for the whole course	20 compulsory days of residential schooling per study year	One 3-day seminar a month	60	For skill courses 30 minutes, for science courses the possibility of 45 minutes laboratory work

Points of the questionnaire / Nation, Name of the project	BRAZIL TV School for Illiterates	CANADA Tevec	FEDERAL REPUBLIC OF GERMANY Telekolleg	FRANCE TELE-C.N.A.M.
Does the majority of the participants watch the TV courses at home (alone), or in groups at a certain meeting place?	In groups - viewing centres, established on the premises of private and public organizations - under the supervision of a teacher	At home (alone)	At home (alone)	In groups - viewing centres, established on the premises of firms and schools - under the supervision of a specialized teacher or an engineer; or at home (alone)
How high is the total number of participants?	2,000	80,000	75,000	No information possible, as the participants do not have to register. The number of participants in Paris is approximately 7,000
Which groups are there in the student body, according to their motives and aims?	Illiterates, who hope to reach better-paid and more secure jobs by means of their new knowledge	Information on this question will not be available until the project is concluded in May 1969	1. Persons aiming at better vocational and social standing by participating in the entire curriculum 2. Persons wishing to extend their knowledge through certain courses 3. Persons watching the programmes for general interest (teachers, pupils of similar schools,etc)	1. Engineers wishing to refresh their knowledge or to gain information on special subjects 2. Technicians wishing to reach better-paid jobs by participating 3. Military personnel; students participating in courses not taught at science faculties
Which personal, socio-economical, ecological and regional factors characterize the main group of the student body?	Men, single, 20-25 years old, factory workers, never attended school, live in or around Rio de Janeiro	Information on this question will not be available until the project is concluded in May 1969	Men and women, 20-25 years old, with elementary school class, living mostly in towns	Men, 26-27 years old, monthly income 1,200-1,500 F, living in or around Paris, and in towns with 10,000 - 50,000 inhabit.

ANCE motion rale	GREAT BRITAIN Open University	GREAT BRITAIN Standard of living	JAPAN TV-High-School	POLAND Politechnika Telewizyjna	U.S.A. Boston TV-High School	U.S.A. Chicago-TV College
pe - cen- stab- in the e of ucation- ateme- and in farms	At home (alone), and at the TV viewing rooms of the Open University in London	At home (alone)	At home (alone)	At home (alone) and at viewing centres, established on the premises of firms	At home (alone) and in groups - in neighbourhood centres, established by private and public organisation	At home (alone)
,000	Presumably 54,000-150,000	1,656 "enrolled" students, of whom only 1,179 have participated in both the TV course and the correspondence course	17,165 (as to 1983)	9,717	20,000	8,000
partici- e want e knowl- of prob- respect overall ical si- ion (about the stu- dy) t to play ive part ational ations	- -	1. Half of the participants watch the programmes for general interest 2. One-third thought that participation could help their career 3. 1/4 want to improve their vocational standing	Graduates of elementary school (9 years) who want to improve their possibilities of vocational advancement	Persons wanting to reach better vocational positions by studying at a technical university (full time)	1. Housewives, in order to be better informed 2. Female factory workers, in order to reach better-paid and higher jobs	Housewives and office clerks, who either want t improve their skills in cer tain fields and in genera by participating, or who want to reach better-paid and higher jobs
married, , working ies in ulture, with ele- ry or vo- al school tion, liv- mainly in remote low econo- develop-	- -	Mostly men, employed, 30 - 50 years old	Female factory workers, less than 20 years old, in full-time employment living in all parts of the country	Mainly technicians, 20 -30 years old, living in towns, in full-time employment, 50 % are married	Female factory workers, 30-35, full-time employment, upper lower or lower middle class, no High School Diploma, living in the centre of Boston or in industrial suburbs	Women, 20-35 years old, married, two children, middle income bracket, hold the High Scho Diploma, living in the suburbs of Chicago

Nation Name of the project Points of the questionnaire	BRAZIL TV School for Illiterates	CANADA Tevec	FEDERAL REPUBLIC of GERMANY Telekolleg	FRANCE Télé-C.N.A.M.	FRAN Télé-Prom Rura
Which other organisations and groups of persons participate in the courses or derive a profit therefrom?	Children of 7-12 years, who are not able to attend elementary school (compulsory) due to the lack of schools and teachers	No information available until the project is concluded in May 1969	Pupils (students), parents, teachers	Participants viewing the programmes only in order to gain information	Teachers i rural are
Which advertising methods were used to promote the project and gain participants?	Newspapers, cinemas, radio, TV. Direct establishment of contacts with young illiterates at public meetings	Press, radio, TV, and local private and public authorities. Direct establishment of contacts with the population by the representatives of the communities	Press, radio, TV	Posters on advertisement pillars and in industrial firms, in journals for technology and economics	Newspaper, relevant j nals, broa radio, TV. sultation tres, info mation sup by vocatio organisati and the un
Which have been the results of examinations comparing TV teaching with conventional teaching, in view of the performance and attitude of the participants, the cost per participant, etc?	Results concerning the comparison of performance and attitude are not yet available. They will be added as soon as possible. The cost per participant at the beginning of the project were higher than in conventional teaching. Reduction hereof is expected when the project and the number of participants expands	The results of comparative studies will not be available until June 1969	No comparative studies have been conducted in order to compare the performance and attitude of TV participants and conventional students	In all subjects, the TV students have reached better results than the students in conventional teaching	No compari possible, this proje is the onl of its kin

ANCE omotion iale	GREAT BRITAIN Open University	GREAT BRITAIN Standard of Living	JAPAN TV-High-School	POLAND Politechnika Telewizyjna	U.S.A. Boston TV-High School	U.S.A. Chicago-TV College
s in reas	- -	1. Adults, participating for general interest 2. Regular pupils, whose study curriculum includes the course	Regular high schools, which build entire courses into their curriculum or use certain excerpts of the courses	1. Engineers wanting to refresh their knowledge 2. Teachers at technical universities 3. Regular students needing help for their studies	- -	The City-Junior-College for regular lecture room lessons, while other colleges use the recordings for their closed-circuit networks; talented pupils of the last grade of high school
ere, the t jour- rochures, TV, oca- on con- nfor- supplied tional ations unions	- -	Brochures, announcements in all newspapers, TV, private organisations	Newspapers, posters, pamphlets, radio, TV	Regular announcements on radio and TV, panel discussions with representatives of the minis. of education and TV, posters, brochures	Press, brochures, radio, TV, consultation centres, schools and other institutions, direct establishment of contact with organisations by members of the education department, posters in transport facilities, announcements in church	Presentation of the TV College on TV, regular announcements and statements of contents on TV, activity reports in the press, mailing of brochures to organisations and individuals
arison , as ject nly one ined	- -	No comparative studies have been conducted in order to compare the performance and attitude of TV participants and conventional students. Expenditure for the individual student is very low. The cost of the entire project corresponds roughly to conventional teaching	As yet, no final comparative studies have been conducted. It is apparent that TV teaching is as effective as regular teaching. Expenditure per student is lower than at regular high schools, and will drop further as participation increases	No comparative studies have been carried out. No statements as to the cost of the project.	The results of performance comparison and costs will not be available until June 1969	In most subjects, the performance of the TV participants is just as good as that of conventional students, in some subjects even better. At the start of the project, the cost per student was higher than for conventional students. When the project expands, and the student body grows, a reduction of the cost far below that of conventional per capita teaching is expected.